QUEENSTOWN:

A COPPER-MINING TOWN OF

WESTERN TASMANIA.

A THESIS FOR THE DEGREE OF

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CONTENTS.

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QUEENSTOWN: A COPPER-MINING TOWN OF WESTERN TASMANIA.

Urban geography is concerned with the origin of a town or city in relation to its site, its development, its functional organisation, and its relationship with the surrounding territory. However, few studies in this field have been concerned with towns comparable in size with Queenstown. One reason for such an omission is that towns of five thousand or so inhabitants apparently have insufficient land-use differentiation to warrant a close analysis. But such an assumption is not necessarily true of all towns. It pre-supposes a network of urban settlements more or less evenly distributed over a given rural area of uniform relief. Each centre will have a varying provision of services and varying functional segregation. It is not necessary for all towns to have reached a similar stage of development as the distances between them do not make it impossible for one or two larger centres to serve the whole area in respect of certain functions. Thus the larger centres will have reached a well developed stage of functional segregation, while the smaller centres tend to be more mixed in terms of their elements. Such is true of a network of settlements in a rural area. But what of the isolated mining town which is not part of the network but an independently localised settlement? Generally isolated and distant from other centres, such a town tends to have a greater

degree of importance relative to its size than has a similar sized rural settlement. In consequence, therefore, its stage of functional development should conform more closely to that of a larger rural town. The population of a mining town is entirely dependent on that town for practically all services and facilities, the available range of these being increased by high wages and a disinclination to save. Within the town there will tend to develop a marked differentiation of land-use apparently out of all proportion to the size of the town and the population which it serves. Opposed to this, however, is the prevailing air of uncertainty in the continued existence of the town. This tends to result in the minimum of each service being provided which inevitably, through lack of competition causes haphazard differentiation. Thus, while a mining town may have the services and facilities of a larger rural town, its degree of functional segregation may not be as marked as in a similar sized rural town. In other words, size and degree of segregation will tend to be related in towns forming a network of settlements over a rural area of uniform relief, but not in an isolated community where services will be greater than normal but differentiation will be less.

It is reasonable to assume that as urban centres grow and mature a pattern will evolve of the functional areas. This pattern will tend towards the most efficient and profitable utilisation of the land. It follows from this that if the component areas of a town are arranged in a system, then the arrange-

ment of land-uses within each functional area will tend to a definite pattern consonant with the underlying forces of growth. In order to understand fully a town it is necessary, inter alia, to analyse it in terms of its functions and to examine each function in terms of the elements of which it is composed. Only by such detailed work is it possible to appreciate the geographical nature and individuality of a particular town.

The forces which influence the growth of a town and produce this individuality have been operating ever since the site was first selected. In order to fully understand the town some cognisance of these forces in the past is necessary. All geography is in a sense historical, since it notes and describes the position as it exists at the present moment. Urban geography must pay particular attention to the history of its subject, since the present pattern can often only be understood in the light of past events. The need for an historical approach is especially important with regard to a mining town which is subject to more rapid historical fluctuations than a rural settlement.

CHAPTER ONE.

THE SETTING.

Of the many Tasmanian towns which sprange up following the mineral discoveries in the eighties and nineties of last century, Queenstown, the copper-mining centre of the West Coast, is the only one of any size still functioning. It lies between 500 and 750 feet above sea level in a north-south valley between the high mountains and bare hills of the West Coast Range, 160 miles by road both northwest of Hobart and southeast of Launceston, 100 miles by rail south of Burnie, and 300 miles by sea south of Melbourne. Although widely regarded as the "capital" of the West Coast, Queenstown is merely the largest urban centre (population 4,500); over the 3,000 square miles of the West Coast region it exercises neither political nor economic control. Politically, the town has ever been fiercely independent, a staunch labour stronghold and radical in outlook, vetoing all suggestions for unified local government. Economically, Queenstown has ever been more closely linked with Melbourne than with the rest of Tasmania. Yet this mining centre, today the seventh largest town in the State and once the third largest, owes its very existence to the presence in the town, at a critical point in its history, of a single brick house. But for this house, and the personal wishes of its owner, Queenstown might have become, like

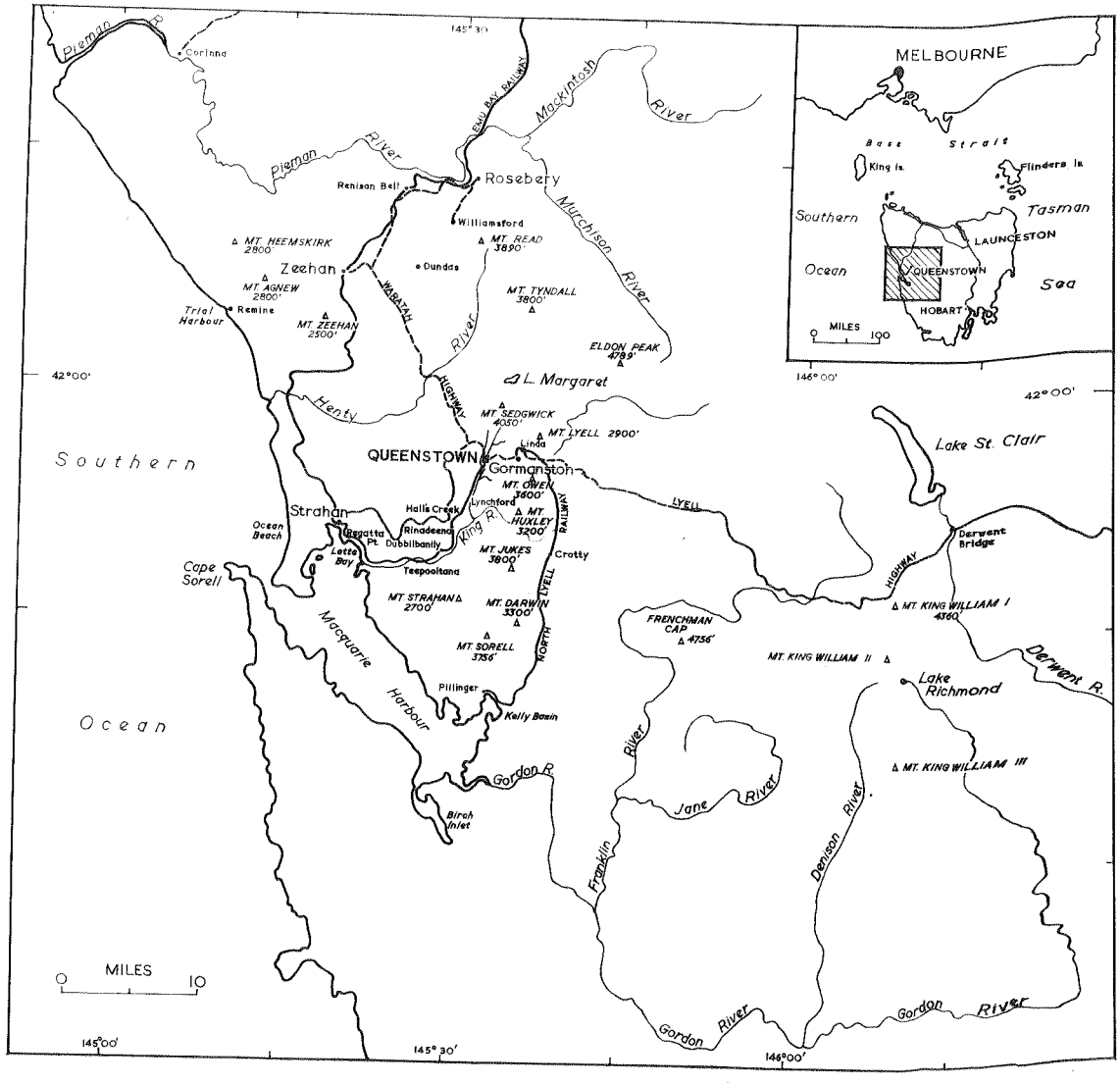
so many other early settlements on the West Coast, a mere ghost town. As it was, another town with a better site and easier access was abandoned instead.

THE LOCATION AND ACCESSIBILITY.

The West Coast region extends from the Pieman River in the north to the Gordon River in the south, and from Cradle Mt. - Lake St. Clair-King William range in the east to the Southern Ocean in the west (Fig. 1, page 9). Separated from the settled areas of Tasmania by the inhospital Central Plateau, this region was for long visited only by convicts escaping from a penal settlement in Macquarie Harbour and by prospectors searching for the "elusive pennyweight" (1). Because of its isolation and difficulty of access permanent settlement was slow to develop and the first, aside from a penal settlement on Sarah Island in Macquarie Harbour from 1821 to 1834, was not made until about 75 years after the first landing in Tasmania at Hobart.

Until the 1930's, the only overland link between Queenstown and the outside world was the 22 miles of single-track railway to Strahan on Macquarie Harbour. Even this was a doubtful outlet as shipping was affected by a bar at the mouth of the Harbour, which at low tide was covered by a bare nine feet of water, and only increased to eleven feet at high tide. The entrance is aptly

(1) Some early geologists and prospectors held to the theory that large gold deposits would be found along the 146th meridian which lies about 25 miles east of Queenstown.


MELBOURNE
Bass Strait
King Is.
Flinders Is.
Southern Ocean
Tasman Sea
LAUNCESTON
QUEENSTOWN
HOBART
MILES 100
145° 30'
146° 00'
42° 00'
Piemaa R.
Corinna
Pieman River
Emu Bay Railway
Mackintosh River
Rosebery
Renison Bell
Williamsford
Murchison River
MT. HEEMSKIRK 2800'
MT. READ 3890'
Zeehan
Dundas
MT. AGNEW 2800'
MT. TYNDALL 3800'
Trial Harbour
Remine
MT. ZEEHAN 2500'
Wanatah River
ELDON PEAK 4789'
L. Margaret
Henty
Lyell Highway
MT. SEDGWICK 4350'
MT. LYELL 2900'
QUEENSTOWN
Linda
Gormanston
Lake St. Clair
Southern Ocean
MT. OWEN 3500'
Lynchford
Strahan
Halls Creek
MT. HUXLEY 3200'
Ocean Beach
Regatta Pt.
Rinadeena
Dubbilbanilly
King R.
Lyell Railway
Derwent Bridge
Lyell Highway
Lake Pieman
Lake Burbury
Lake Gordon
Lake Pedder
Lake Margaret
Lake St. Clair
Lake Richmond
Lake Rhona
Lake Fergus
Lake Augusta
Lake Ada
Lake Tiberias
Lake Sidmouth
Lake Vera
Lake Dobson
Lake Geeves
Lake Tahune
Lake Judd
Lake Rosebery
Lake Selina
Lake Plimsoll
Lake Mackenzie
Lake Newton
Lake Rowallan
Lake Parangana
Lake Gertrude
Lake Ayr
Lake Ina

named "Hell's Gates". Inside the entrance the main shipping channel is a narrow mill race a hundred yards wide and eighty feet deep. The danger of being wrecked and the limited size of ships which could cross the bar led to high freight and insurance rates. During the boom period of the mining fields, the sea freight per ton-mile from Burnie to Strahan was six times as much as that from Burnie to Sydney. This had the effect of increasing the feeling of isolation from the rest of the world. The obvious need for better accessibility produced numerous grandiose railway schemes to link the West with the deeper Tasmanian ports. Opposed to this was the demand that the Harbour entrance be deepened and protected by breakwaters, but this proposal was seen by many as an attempt on the part of the Melbourne merchants to retain their dominant position in the West Coast trade at the expense of the Tasmanian merchants. When it became evident that the colonies were about to federate, the Tasmanians became resigned to Melbourne dominance. The wreck of two ships on the bar within three months of each other in 1898 led to the decision to deepen the channel. This was followed in two years by the completion of Emu Bay Company's railway line to Zeehan, thus making it possible to travel by rail from Queenstown to Burnie. The private company offered cheaper rates than the government line to Strahan, so most of the production from Zeehan went northwards. The Mount Lyell Company continued to export their goods via Macquarie Harbour, but the importance of Strahan was lessened.

The general feeling of isolation continued, however, and found expression in the continual cry for road links between Queenstown and Hobart and Launceston. The demand from the West was supported by Hobart businessmen. A new generation saw the advantages of a good road link between the two towns. But it was not until November, 1932 that the fifty-one miles of road between Derwent Bridge and Queenstown was opened. Previously it was necessary to walk the overland track from Derwent Bridge at the southern end of Lake St. Clair, a trip taking several days if the weather was poor. The effect of the new road was to permit roadfreighters to take over some of the Strahan-Melbourne sea-trade. Even today, however, Hobart has not superseded Melbourne as the main source of supply. Although the number of orders placed in each centre is about even, the value of goods from Melbourne is about double that from Hobart. In 1937, the Missing Link between the Great Lake and Bronte linked Launceston and Queenstown, and later the same year, the 26 miles of road to Strahan was opened, following in large part the walking track used by the prospectors in the early days. The road to Zeehan was completed in 1941, but it was not until 1953 that the road was extended to Rosebery. Eventually it is hoped that this road will be constructed through to Burnie, and so form a northern road outlet for the West. The cry of the West today is for this northern outlet, and for the sealing of the Lyell Highway, in order to reduce the travelling time needed to reach other parts

of the State. In general, the feeling of isolation from the rest of Tasmania is not as strong as it was in the early days, but many Queenstowners feel that while they contribute much to the State's economy, they do not get a fair return in the form of good communications.

THE PHYSICAL SETTING.

Physiography:

The West Coast is a rugged and turbulent area. Superficially at least, it is similar to Northland in New Zealand. Much of it is still unexplored and its potentialities are still unkown. Bleak mountain ranges, impetuous rivers, precipitous gorges, highland lakes, grey-green moorland, and dense rainforest combine to give an air of wild beauty and spectacular scenery. The general air of mystery is enhanced by the veil of mist which usually hangs over the whole area. When the sun breaks through however, the country is even more striking, as the normal colours are intensified. In the late afternoon sun, Mt. Owen, normally a grey-white mass, turns primrose, and the pink and orange slopes around Queenstown take on a depth of colour which, according to many world travellers, equals the famous Colorado Canyon in the United States.

Basically, the area consists of pre-Cambrian schists, slates, quartzites and limestones, extensively overlain by conglomerates and limestones of Ordovician to Lower Devonian times and generally

3,000 feet thick. A sequence from coarse lower conglomerates to fine-grained sand-stones, shales and limestones indicates a gradual subsidence during deposition. Following this deposition came a widespread orogeny, linked to the Hercynian Orogeny in Europe, of Upper Carboniferous to Lower Devonian times. This orogeny was the second, and the most important, of three epochs of mineralisation in Tasmania, and it was the one responsible for most of the West Coast mineral fields. In addition to causing mineralisation by selective metamorphism, it was also responsible for the silification of the West Coast conglomerates, and was accompanied, as was to be expected, by widespread folding and faulting. This folding and faulting is reflected in the present West Coast Range, which comprises all the peaks from Mt. Tyndall in the north, to Mt. Sorell in the South. Unconformable Permo-Triassic sediments and Jurassic dolerites, which once covered most of the region, have been practically entirely eroded away, remaining only in downfolds. In Pleistocene times, the area east and north of Queenstown was subject to glaciation, signs of which can be seen in the numerous lakes, especially the near perfect example of a cirque lake on the top of Mt. Owen, and including Lake Margaret, from which the Mt. Lyell Company derives its hydro-electric power. Recent elevation of the whole area has resulted in the heavy degree of dissection and step-like descent from the peneplain to Macquarie Harbour in the south.

The West Coast, then, can be divided into two physiographic

regions, running parallel to each other from north to south. The first of these is the Western Coastal Platforms, which are composed of a series of erosion surfaces, reaching to 1,500 feet in height, and extending a variable distance inland. It includes the ill-defined areas known as the Henty and Howard's peneplains. It is not yet clear whether these surfaces are due to sub-aerial or marine erosive forces, but it is fairly certain that the lower surfaces, at least, are the result of marine erosion. All the surfaces are cut by deeply incised rivers, and monadnocks are represented by Mts. Agnew and Heemskirk near Zeehan. The second region is the Western Ranges, a series of discontinuous rugged ranged generally between 3,000 and 4,000 feet in height, but with some peaks reaching over 4,000 feet. Such peaks include Cradle Mt. and the King William Range. Forming the boundary between the West, on the one hand, and the Central Plateau, on the other, the ranges are composed mainly of folded pre-Cambrian and Paleozoic rocks, whose trend reflects the axis of folding. A number of consequent streams, notably the middle Gordon, the upper Franklin, and the Murchison, cross the ranges in a series of gorges, but subsequent streams, running parallel to the ranges along the strike of weaker rocks are more common. The development of the trellis drainage pattern in both regions has been accompanied by fairly widespread river capture. The main areas of valley glaciation appear to have been the Frenchman's Cap block, and the Tyndall and Denison Ranges, but cirque glaciation operated on

many of the ranges, on the eastern or lee side. Thus, the two main topographical features of the area are the West Coast Range and the Peneplain Surfaces, the dominant one being the West Coast Range. The peaks were named by Charles Gould, Government Geologist in 1862, while surveying the area for gold deposits. The heights of the peaks range from 2,900 feet - Mt. Lyell - up to 4,050 feet - Mt. Sedgwick. Being formed of conglomerate, all the peaks have a rather bare appearance, enhanced in the case of the three around Queenstown by the combined effects of large-scale tree-felling to supply fuel for the smelters, sulphur fumes from the smelters, and bushfires. The second feature is a series of peneplain surfaces, and is youthfully and deeply dissected.

The heavy rainfall of a hundred inches per annum and the recent elevation of the area have resulted in extensive dissection and produced a trellis drainage pattern. Some idea of the extent of the dissection can be gained from the fact that the twenty-two miles of railway line between Queenstown and Strahan crosses more than forty creeks and rivers. The rivers of the region - the King, and its tributary, the Queen, the Gordon and the Pieman - flow alternately through gorges and across plains. The gorges, especially that cut by the King river, are spectacular. The King River rises in the Eldon Range, and flows south over the peneplain surface until it is joined by the Linda, after which it swings sharply west, to cut the main gorge between Mts. Huxley and Jukes. This gorge is approximately 3,000 feet deep, but another gorge, not quite so

deep, is generally regarded as equally spectacular, and is seen by more people, being visible from the Queenstown-Strahan railway line. It occurs after the King has been joined by the Queen River, and the slopes of the gorge rise almost perpendicularly from the silver thread at the base. From here to Macquarie Harbour, the King flows over a grey silt bed, the result of pollution of the Queen River by the Reduction Works at Queenstown. At its mouth in Macquarie Harbour is a bar which prevents all but the most shallow-draughted boats coming up the four miles of navigable water to Teepookana. Its tributary, the Queen River, rises on Mt. Lyell, and is joined by a number of creeks such as the Pearl, Conglomerate, Hunter, Raggedy, and Roaring Meg. Polluted by waste material from the Reduction Works, the Queen is a thick grey stream, described by many as an industrial sewer. The Gordon and the Pieman Rivers, the south and north boundaries respectively of the region, are two of the State's most beautiful scenic attractions. The Gordon rises in Lake Richmond and flows south for some distance, before turning sharply west to enter what is said to be the deepest gorge on the West Coast. The last twenty miles of its course is a drowned valley with a bar at its mouth. Similarly, the Pieman in its lower reaches is a drowned river with a bar at its mouth.

Climate:

Climatically, Queenstown is subject to five factors. On the large scale, there is its position on the Island in relation to

the wind system, and its latitude which influences temperatures. On the small scale, there is its situation in a valley, the absence of vegetation on many of the hills, and the presence of the smelters. All of these combine to produce the distinctive climate of Queenstown.

The average Tasmanian, lacking personal experience of the West Coast, is under the impression that showers there last for twelve months, the rainfall is measured in yards, the sun never appears, and if by chance rain does not fall for two or three days then a drought occurs. Like many other ideas and impressions of the coast this is somewhat exaggerated, but it is understandable once the facts are known.

Tasmania comes under the influence of polar maritime air masses throughout the year, receiving its rainfall from an alternating succession of high and low pressure systems. Rainfall in the West is influenced by the West Coast Ranges. For example, the average annual rainfall at Cape Sorell on the coast is 49 inches, at Queenstown (440 feet above sea level) 100 inches, and at Lake Margaret (2168) 145 inches. Annual variations are considerable. An annual minimum of 72 inches has been recorded at Queenstown, with a maximum of 123 inches. A similar degree of variation is evident in the monthly figures. The average monthly rainfall ranges from a minimum of four inches in February, to a maximum of ten inches in August. The four months of July to

October average over nine inches; December, January and March average less than seven inches; and the other four months have between seven and nine inches. But again the variations are considerable. February, the driest month has recorded variations ranging from a half to ten inches, while August, the wettest month, has a range from four to fifteen inches. For the thirty-year period from 1911 to 1940, the average annual number of rainy days - days on which a minimum of one point was recorded - is 213 days, and the maximum number of rainy days recorded does not exceed 250 days. In many cases the rain fell at night, or in short heavy bursts, giving several inches in as many hours. Against this however, it must be remembered that it may rain in light showers for days on end, and it is this which has given rise to the impression of twelve-monthly showers.

The annual temperature range for the West Coast is from forty to sixty degrees. Winter minima of thirty and twenty degrees have been recorded. Snow has fallen in the town, and is regularly seen on the surrounding mountains. In the summer months a heat wave may send the temperatures up into the nineties. At Cape Sorell a maximum temperature of ninety degrees has been recorded, and a minimum of thirty, while at Zeehan the recorded maximum and minimum are ninety-nine and nineteen degrees respectively. The annual average index of relative humidity - obtained from the ratio of the average morning vapour pressure to the saturation vapour pressure at the average mean temperature - is over eighty per cent everywhere on the West Coast while the daily

3 p.m. relative humidity averages between seventy and eighty per cent for the year. The Queenstown area is the cloudiest part of the State. The total annual number of hours of sunshine for Queenstown is approximately 1,750 hours, compared with over 2,000 hours for Hobart and Launceston. December and January are the sunniest months, and July is the cloudiest month. It is noticeable that these do not coincide with the driest and wettest months of February and August.

From the above information, it is possible to classify Queenstown according to both the Koeppen and Thornthwaite climatic systems. Using the Koeppen system the region is classified as a warm temperature rainy area with cool summers, indicating that the temperature of the coldest month is between sixty-four and twenty-six degrees; that the area is humid throughout the year; with no month averaging less than two inches; and that summers are cool but with at least four months having average temperatures of over fifty degrees. Thornthwaite would classify this area as a "superhumid cool" type. The precipitation effectiveness is over 128, and the temperature efficiency is between 32 and 64. In other words it is a region of high rainfall and generally low temperatures.

In the whole of Australia only the tropical coast of Queensland east of the Atherton tableland around Innisfail receives as much rain. It was the volume of rain and the high humidity which prompted one early wag to supply the local press with the following variation of the old nursery rhyme:

Dirty days hath September,
April, June and November;
From January until May
The rain it raineth every day.
All the rest have thirty-one
Without a blessed gleam of sun.
And if any month had two and thirty,
They'd be just as wet and just as dirty. (2)

So far the discussion has been confined to the macroclimate; more important, however, in an urban area is the microclimate. Although accurate statistical data are not available, Queenstown's microclimate has aspects worthy of note. Firstly, owing to the alignment of the town from slightly east of north to slightly west of south, the eastern bank receives more insolation than the western. This, as well as the greater area of flat or gently sloping land available on the eastern bank, helps to explain the concentration of settlement east of the river. Secondly, air drainage facilitates the formation of fogs, themselves accentuated by the smoke of the smelters; the resultant "smogs", particularly in the early days, resembled those of big industrial cities. Pedestrians would bump into each other, unable to see in the choking, yellow, sulphurous "pea-soupers". Thirdly, the absence of vegetation increases the temperature range, giving rise to an "oven-like" feeling in the valley in summer, and accelerates run-off, reducing creeks to mere trickles after even a week of no rain. The Queen River, normally a torrent ten feet wide and three feet

(2) Zeehan and Dundas Herald: Vol.IV,No.274, August 30th, 1904.

deep, becomes a small creek two feet wide and barely a foot deep after a few days of dry weather. Such dry spells, incidentally, are fairly frequent, in summer and winter alike. A high pressure system moving over the State in winter can produce a spell of cold dry weather with disastrous results in Queenstown. In 1934 three weeks of such weather nearly caused the closure of the mine through a shortage of water. In summer such a spell quickly dries out the vegetation where it does exist, and bushfires become a serious threat. Fires were aided in the early days, said the miners, by the coating of sulphur deposited over everything, thereby increasing its burning power. Unfortunately, no records were kept of these dry spells so it is impossible to plot their frequency and duration. Fourthly, the presence of buildings may well raise the temperature and lower the humidity in the town relative to the surrounding countryside, but without precise measurements it is impossible to say to what degree.

Soils and Vegetation:

The rugged nature of the country and the heavy rainfall, together with the generally poor soils and dense vegetation render the West Coast unsuitable for agricultural purposes. Little detailed work has been done on the soils of the region, but it is generally assumed that they are predominantly normal podsols. There is, however, a coastal strip of button grass peats extending north from Macquarie Harbour.

The temperature rainforest vegetation cover is generally

confined to areas which receive more than fifty inches rainfall per annum, and it is characterised by a wealth of species, the dominant one being myrtle. Where this occurs in more or less pure stands, the undergrowth is restricted to ferns, but where it is more mixed, three layers can be distinguished. Of the conifers found in this area, the main examples are the Huon, Celery-top, Pencil, and King Billy pines. The Huon pine was much in demand in the early decades of last century for its excellent building qualities. Being confined mainly to the river banks, it was relatively accessible, and large quantities were cut and floated down the rivers. The King Billy pine is a very slow-growing, and hence very durable, tree. The valley in which Queenstown is situated was originally an almost pure stand of King Billy pine and, as it splits very easily into palings, it provided the main building and roofing material for the early settlers. Today the only evidence of it as a building material is the shingle roof on one shop. Another important species is the manuka tree, which is much in demand for firewood, providing good fuel whether the wood be wet or dry - an important consideration in a region of superhumid climate. Other tree species include sassafras, leatherwood, several species of gums and wattle, as well as the notorious horizontal and tanglefoot, which make the forest in some parts all but impenetrable. Two other interesting features are the presence of fuchsia bushes growing along considerable stretches of the Queenstown-Strahan railway, and secondly, the grass-palm, so-called by the local inhabitants, with

foliage resembling the tuft of a pine-apple, which is found along Ocean Beach at Strahan.

Generally speaking, the rainforest is confined to westerly aspects and to lower altitudes. On easterly slopes, the euclyptus tend to be the dominant species, and the overall appearance is less dense. At higher altitudes, the forest gives way to scrub and grasses. The button-grass plains areas are largely the result of peculiar soil and drainage conditions, the soils having a high organic content, and being acid and waterlogged. In additic they develop in places where the original vegetation cover has been removed by fire. The overall impression of the vegetative pattern on the West Coast is one of dense, lush, green forest. In contrast to this is the immediate vicinity of Queenstown where tree-felling, sulphur fumes, and bushfires have reduced the vegetative cover to a minimum. To the south of the town, the hills are mainly covered with bracken, but elsewhere the hills have only scattered green clumps.

THE ECONOMIC BASE.

The basic fundtion of, and raison d'etre for, Queenstown is mining - copper mining. The copper town is dependent on the continued functioning of the Mount Lyell Company for its existence. Copper deposits are widely scattered throughout the West Coast region, but only at Mt. Lyell are they payable. It was the search for gold which began the settlement of this area in the seventies of last century, but it is copper that has ensured its

development.

The ore bodies occur along the line of contact between the Mt. Lyell schists to the west and the West Coast conglomerates to the east. The schists are the result of metamorphosed conglomerates, and grade westwards into porphyroids. The West Coast conglomerates, described previously, can be divided into three series - upper, middle, and lower. The schists and porphyries vary in structure from finely laminated schists to massive porphyry types, according to their distance from the conglomerates. The line of contact between the schists and conglomerates was formed by faulting and the replacement of the conglomerates along this line was either the result of an intrusion or of metasomatic replacement. Four northwest-southeast folds and numerous northeast-south west folds are directly responsible for the pattern of the mineral zones. The line of contact results in the concentration of ore in its vicinity, while the northeast and northwest folds intersect at the main ore deposits and so determine their general location on a horizontal plane. Vertical location is determined by strata competency.

The ore field extends in a narrow belt from just north of Mt. Lyell to the northern side of Mt. Owen, a distance of about two and a half miles. The main deposits are the Iron Blow or Mt. Lyell, North Lyell, West Lyell, and Royal Tharsis, but there are also numerous others. All the main deposits occur along the saddle between the two mountains, the only exception being

the Lyell Comstock mine north of Mt. Lyell. The first of three types of ore bodies is the native copper deposits in the sandy clays of the Linda Valley. The two main deposits, known as King Lyell and Lyell Blocks, occur in synclines and so are protected from erosion. Originally they were thought to be of secondary origin, resulting from the leaching of high grade outcrops higher up the slopes, but it is now agreed that a hypogen origin is more probable, and this view is supported by their general conformity in the overall field structure and by a tongue of schist extending into the clay at King Lyell. The second type of ore body is the massive deposits on or near the line of contact. These are represented by the North Lyell, Mt. Lyell, and South Lyell deposits, and occur in pockets at the bottom of the upper conglomerate series where schists have replaced incompetent rocks. The Mt. Lyell-South Lyell deposits occupy an anticlinal position on this horizon, while the North Lyell body occurs in a synclinal position. The first two bodies were of massive pyrites, the copper being chalcopyrite, and the gangue quartz and barite. The North Lyell body, however, was mainly siliceous, the copper being bornite and chalcopyrite, and the gangue quartz, barite, and hematite. The third type is the low-grade ore bodies, occuring in the schist but away from the contact. This type constitutes the greater number of bodies, which may be some considerable distance from the contact, but mineralisation is possible as the conglomerate underlies the schist. The main bodies worked are Royal Tharsis and West Lyell which can be described as dissemina-

tions of chalcopyrite and some bornite in schist. Other bodies, such as Lyell Comstock, Crown Lyell, and Lyell Tharsis are all more or less connected and have no definite limits, economic cut-offs being used to determine the extent of the body. Pyrites is present in all of these ore bodies, while in some places the ore is siliceous with a quartzose gangue. It is possible that a fourth type of ore body may occur in the Breccia Conglomerate which underlies the West Coast conglomerates. In all probability, the mineral zones of Glen Lyell and Mt. Lyell Reserve A are associated with this formation.

Mining techniques and smelting operations have varied according to the type and grade of ore being mined. The Mt. Lyell ore body - the Iron Blow - was originally mined by open-cut methods, but this became uneconomical with increasing depth, and underground methods were adopted after 1909. The North Lyell mine, however, was worked entirely by underground methods, as in fact were most of the other mines of the district. The main exception is the West Lyell-Royal Tharsis open-cut. Before the Second World War, practically all the mining was underground, but since the war a shortage of labour, combined with the exhaustion of most high grade underground deposits have turned the balance in favour of open-cut mining of low-grade ore.

The smelting operations have similarly varied according to economic conditions. When Robert Sticht was appointed by the Company in 1894 to erect the Mount Lyell smelters, he was known to be the leading authority in the United States on pyritic smelting.

This method utilised the heat generated by the combustion of the iron and sulphur in the pyritic ore as a fuel in the furnace, thus dispensing with the need for quantities of coke. Sticht was convinced, after seeing samples of Mt. Lyell ore, that pyritic smelting would be an unqualified success. And so it proved to be until the end of the First World War. Then copper prices dropped sharply; in 1920 the Company was producing copper at £100 per ton and selling it at only £80 per ton. In order to cut costs, it was decided to abandon pyritic smelting, and switch to the flotation process. This decision was in part due to the low grade of ore which was being mined at this time. The flotation process produced a concentrate of fifteen to eighteen per cent copper, thereby reducing the smelting costs. In 1927, an electrolytic refinery was built, using cheap power from the Lake Margaret power station, thus cutting down the amount of inherently waste material being exported to the manufacturing works in New South Wales. In the early thirties, a further change was introduced. It was necessary to replace the dilapidated sintering plant, the machinery which, by roasting the sulphur from the concentrate, turned powdery sloppy cement-like concentrate into small lumps which would melt quickly, without being blown up the chimney stack as dust. By mixing sinter with the concentrate and tipping the lot into the smelter, R. M. Murray, the general manager, increased the efficiency of the smelter; saved the cost of replacing the sintering plant; and reduced the coke bill by using the

sulphur, which had previously been lost in the sintering plant, as fuel. A dust collecting apparatus, was devised and became so efficient that 97 per cent of the concentrate blown up the chimney as flue dust was recovered. Although this is a freak process, it is indicative of the Company's desire to work efficiently and cheaply.

The dependence of the town on the Company, and the strong links between them are borne out by the expansion and contraction of the town with the progress or retrogression of the Company. At present, over 75 per cent of the working population of the town are employed directly by the Company. Any decline in Company employment is reflected in a reduced town population, empty houses, decreased retail business, and a general lessening of community activities; for Queenstown is essentially a single-function town. Any unemployment in that function immediately causes unemployment in all other dependent occupations, and results in a considerable exodus of population.

THE HISTORICAL BACKGROUND.

On November 24th, 1642, Abel Janzoon Tasman sighted land which he described as "very high land". Towards evening saw in the E.S.E. three high mountains and in the N.E. also saw two mountains, but not so high as those to the south" (3). The coast which he saw the next day was smooth and bare. The two peaks to the northeast were named by Flinders in 1798 after Tasman's two

(3) Walker: Early History of Tasmania, page 229.

ships - Zeehan and Heemskirk. The mountains to the southeast were probably Frenchman's Cap, Mt. Darwin, and Mt. Sorell, while the very high land seen over the low sandy foreshore north of Macquarie Harbour was part of the West Coast Range.

Neither Tasman nor Flinders recorded landing on this part of the Island. The first white man to do so was James Kelly in 1815. Kelly left Hobart with four companions to explore the coast of Tasmania. After investigating Port Davey, they continued northwards rounding Cape Sorell, to find a strong current running out of the inlet opening to the southeast. They assumed that there was a large river in that direction. A bushfire was burning with such intensity that the smoke prevented the explorers from seeing, and being seen from, the shore, even though the passage was only a hundred yards wide. The next day the smoke cleared and they found themselves in a large sheet of water which Kelly named after the governor of New South Wales - Macquarie Harbour. The party sailed to the south-east corner of the Harbour and discovered and named the Gordon River. After sailing right round the Harbour, they realised that it was in fact a bar harbour, suitable only for very shallow draught vessels. Kelly noted plenty of Huon pine surrounding the Harbour.

Kelly was followed by groups of men anxious to wrest a living from the timber which he had described. Various peaks were explored and named in the course of the next forty odd years, but it was not until 1862 that the Queenstown area was first visited. In that year, Charles Gould, the Government Geologist, was sent to

explore for minerals. From a base camp at the foot of the Eldon Ranges, he followed the King River south, turning west at the Linda Valley, which he named the "Vale of Chamouni". The surrounding peaks were named after Darwin, his supporters and opponents. Gould had left England in the year in which Darwin published his "Origin of Species". The theory evidently did not find favour with Gould for he named the three dominant mountains after three of Darwin's sternest opponents - Sedgwick, Owen and Jukes, while the three lower peaks were named after Darwin and two of his disciples - Lyell, the geologist, and Huxley. Gould followed the Linda Creek to its source and continued up until he reached the saddle between Mts. Lyell and Owen. He was hoping to find an easy track to the coast, but he was disappointed. From here to the coast, the only open land he could see was a small plain two miles distant, which could only be reached by first crossing a set of frightful ravines and gullies. He decided to follow this, however, and, crossing the Queen River close to the site of the present township, he and his men then cut their way up to the plain and continued south to Macquarie Harbour. Such was the nature of the country, however, that it took them fifteen days to travel twenty five miles, often making less than a mile a day.

It was another twenty years before this valley was again visited by man. In that time many mineral deposits had been discovered, including tin at Mt. Bischoff and Mt. Heemskirk, and gold at the Pieman River. At the 1881 census the total population of

the West Coast probably did not exceed 2,000, of whom 1,300 were to be found at Waratah. Early in 1881, a wiry Irishman, "Con" Lynch and two companions cut their way up the Queen River from the south, and washed heavy gold from the river. One of his mates fought his way up to the saddle and saw Gould's "Vale of Chamouni", unvisited for twenty years. Lynch's find started a small rush to the area, and gold was washed east and west of Mt. Lyell. Realising the extent of the gold-bearing country, the government set about improving means of access. Previously, the only way of reaching this part was by boat from Strahan, up the King River, hauling the boat over the twenty rapids to the gorge. From there, the diggers splashed their way up Sailor Jack's Creek to the present site of Rinadeena, after which they crossed the ridge along the line of the present railway down to the Queen Valley. The government, however, financed a track from Strahan to Howard's Plains west of Mt. Lyell. It was a gigantic labour, and earned for the cutters the sum of £10 a mile from the government, and violent oaths and curses from every digger who followed it. By the end of 1883, diggers were washing gold along all creeks flowing into the Queen River.

Three prospectors, attracted by news of gold in the Queen valley, were the McDonough brothers and Steve Karlson. Finding Lynch's Creek pegged out, they decided to cross the Queen and investigate the Saddle. Near the site of their camp, which was very close to the site of Gould's camp, their attention was attracted

by an outcrop of iron on the side of a steep spur. Gold panned from the creek in the gully below, however, so they pegged a claim there. Making a closer examination of the iron outcrop - "Iron Blow" - and discovering gold specks in the conglomerate, they quickly pegged a fifty-acre lease around it. Their disappointment was great, when they realised that in fact the "gold specks" were iron pyrites, a deceptive mineral commonly called "fool's gold".

For the next two or three years, the discoverers, or their successors, for they were forced to sell shares in the mine to others, alternated between blasting for the reef which they believed was hidden in the Blow, and sluicing for the fine gold which earned them bread and butter. At the end of 1885, William Dixon and James Crotty, who had bought out the McDonoughs, and Steve Karlson, plus Steve's two brothers, and a sixth member, F. O. Henry, who was a storekeeper at Strahan, formed themselves into the Mt. Lyell Prospecting Association, and appointed an independent manager to work the mine. By March, 1886, the mine was a liability, and the Karlsons were forced to sell their shares. In 1887, Crotty went to Launceston in search of efficient organisation, expert advice, and capital. He was able to form a company known as the Mount Lyell Gold Mining Company, despite the report of Dr. J. R. Robertson that the ore was poor in gold and silver, consisting of roughly half sulphur and half iron with a small amount of copper. The mine could not pay its way as a gold mine, however,

and in 1891, when a census gave the population of the area as 58, a Melbourne syndicate was given an option of the mine. They withdrew it, and in July the Directors resolved to wind up the Company.

Bowes Kelly and William Orr who made fortunes at Broken Hill were attracted to Tasmania by the discovery of silver at Zeehan. They inspected the Iron Blow and came to the conclusion that it could be worked profitably for copper, with gold and silver as by-products. Buying a controlling interest, they formed a new company the Mount Lyell Mining Company (No Liability). An American, E. D. Peters, was engaged to report on the deposit. The directors attempted to enlist English capital to develop the mine, but the bank crash of the previous year had made British investors wary of Australian mines. However, a bonanza of rich silver ore yielded £106,000 clear before petering out, and gave the Company the necessary stimulus to carry on (4).

Before much development on the field could take place, however it was necessary to construct a railway to Macquarie Harbour. Early in 1893 a team of surveyors set to work. After trying many suggested routes, they elected to follow the King River to Sailor Jack's Creek, over the dividing range, and up the Queen Valley. From Dubbilbarril to Rinadeena the grade is one in twenty for three miles, and from Rinadeena to Hall's Creek on the Queenstown side

(4) For fuller details, see Blainey, Chapters 7 and 8.

of the range the grade is one in sixteen for one and a half miles. The solution was the Abt railway, first used in the Harz Mountains in Germany, and employing a middle rail or rack and a cogged pinion wheel on the locomotive. Construction commenced early in 1894, and until completed in July 1896 proved a mecca for the unemployed from all over the Island. In March 1895 Robert Sticht arrived to organise smelting operations. The site for the smelters had been selected by Peters near the Queen River. Sticht approved of the site and building went ahead. By June 1896 the works were ready and the furnaces were lit (5).

Most of the early settlements of the region have declined in importance. The ghost towns dotted through the area are relics of many erstwhile rich mineral deposits. Some of the early settlements such as Penghana, North Lyell, Dundas and Crotty have completely disappeared. Others such as Linda and Lynchford are mere shadows of the boom days. Others again, although reduced in size, are still fairly important centres. These include Zeehan and Strahan. The two centres which have survived as flourishing centres are Queenstown and Rosebery. In their heyday some of the towns had a population of several thousand. At the turn of the century Zeehan's population was over 5,000, while Strahan had 1,500 and Gormanston 1,800. Today each of these has approximately 500 residents who are lost in extensively laid out towns. In Zeehan particularly the general air of decay and stagnation is overwhelming. Gormanston is partly helped by the Mount Lyell

(5) Blainey, page 72.

Company and is regularly given a coat of paint, but its barren site and lofty situation in a wind funnel between towering hills is not conducive to a progressive community spirit. Strahan, the port of the region, is more attractive, but again laid out for a population many times the present one.

The settlements in the Queenstown area were of two types. The first and earlier were those which followed the construction of the railway, such as Teepookana, Dubbilbarril, Rinadeena, and Hall's Creek. In their day, they housed roughly 500 men and consisted mainly of smoky tents, paling huts, stores, boarding houses, and a "refreshment tent", that is, a sly grog shop. They were essentially construction camps and today they consist only of a wooden or iron shed serving as a station and in some cases two or three corrugated iron houses.

The second and later settlements were those which sprang up on the field. These were five in number although not all five were in existence together. So compact were they as a group that the greatest distance between any two was less than three miles. Two were situated in the Linda Valley, two in the Queen Valley, and one on the ridge between. The Linda Valley townships were essentially miners' towns, while the Queen Valley settlements were smelters' towns. In both cases one was the result of haphazard settlement and growth, while the other was the result of at least some planning.

The first settlement in the Linda Valley was at Gormanston.

Its closeness to the "Blow" overcame the disadvantages of gloomy surroundings and a worse climate than Queenstown, and enabled it to thrive, and at times rival Queenstown. It was doomed to extinction once its advantage had been lost, and since 1928 it has steadily declined. The other Linda Valley settlement was Linda itself. It is set in the valley below Gormanston and began its short life about 1900. It quickly grew to a population of 600, until a slump in copper prices closed a number of mines and caused the abandonment of Linda and several other towns. On the ridge between the two valleys was the small township of North Lyell, threatened by bushfires in summer, covered with snow in winter, and exposed to sulphur and wind all the year. The only remnants of this once prosperous township are a confused mass of wreckage of buildings, bottles, and machinery.

Of the two townships in the Queen Valley, the first - Penghana was haphazard in growth, while the other - Queenstown - had some planning behind it. Penghana, originally known as Queen's Crossing had a short but violent existence. It was situated at approximately the present site of the Company offices, at the point where the diggers coming via Howard's Plains from Strahan crossed the river and proceeded up to the "Blow". It owed its existence to the building of the smelters. Several hundred tents and shacks sprang up, and by July 1895 it was of a sufficient size and had developed such a community spirit that the residents jointly requested the Minister of Lands to provide amenities in the form

of roads and other improvements. In August 1895, a Dr. Abbott arrived to take up duty as a full time medical officer, and in November a public meeting organised a society to help those suffering from sickness or accident (6). This was the earliest medical benefits society on the field. Other activities included a literary and debating society, and a vocal group known as the "Penghana Mopokes". A correspondent to The Zeehan and Dundas Herald in the middle of 1895 supplied a vivid description of the "industrial town in a forest clearing" (7). "Jimmy the New Man" was generally supposed to be an inspector of mines, and although used to roughing it on a mining field, even he seems a little appalled at the standards found in Penghana. He described the town as consisting of a very straggling lot of houses and huts, in an aspect which, on a wet day, was anything but cheering. Houses were primitive in style, and evidently carpenters were scarce as the dominant building materials were calico and King Billy palings, sometimes combined, sometimes not. The result was a motley, unpretentious collection of buildings with no regard for uniformity of shape, style or architecture. New arrivals were catered for by so-called boarding houses. Jimmy the New Man's experience of these was typical. One such establishment consisted of a two-roomed shack, but as the proprietor was married with five children, Jimmy felt it would be a little overcrowded. Eventually

(6) Zeehan and Dundas Herald: Vol. XVII, No. 228, July 11th, 1906.
(7) Blainey, page 86.

he selected an establishment in which he got the last empty bed in a room holding ten. The proprietor, however, did not consider it full and accomodated an eleventh guest by slinging a hammock in the middle of the room (8). The Government failed to supply a police force for the town, the only policeman in the whole area being in Gormanston. Drunken brawls were a frequent occurrence, and an early diarist records the attack by a drunken pugilist on a restaurant keeper, who as a result suffered damage both to person and property (9). A fairly constant stream of letters to the editor of the Herald drew attention to the high incidence of drunkenness in the town and the need for a police force to ensure some sort of law and order. At the other end of the scale the Salvation Army established a barracks and regularly mustered a small band, while an Anglican priest likewise regularly carried his swag overland from Strahan to preach in the blacksmith's forge.

Generally speaking, all activity in the township was directed towards building the smelters, crushers, storage bins, flue and chimney stack. To this end forges, limekilns, carpenters' shops, and a sawmill were built. But once the necessary construction works were finished Penghana was doomed, despite the high hopes of its inhabitants; and the active community spirit which it possessed. The general conditions were conducive to filth and disease. At the beginning of 1896 when a Progress Committee was

(8) Zeehan and Dundas Herald: Vol.VI, No.106, February 18th, 1896.

(9) Ibid: Vol. XVII, No. 226, July 9th, 1906.

formed, its population was around five hundred. This had doubled by June when the smelters began operating. The town was built on a section of the Company's lease with no legal authority. The owners of houses had no title to the land, so no sanitary regulations could legally be enforced and no taxes could be demanded. Its one advantage was that it was close to the smelters. But even this was a doubtful pleasure when the smelter began operating, for the town received the full effects of the smoke and sulphur given off. Every resident realised that it was only a matter of time before they would have to move to the new town a mile down the valley. The move was forced in December 1896 when Penghana was all but destroyed by fire. Four weeks of dry warm weather, followed by a blustery northeast wind, made conditions ideal for a fire, which began on the hill behind the smelters and roared down on the town, destroying over 150 buildings and rendering 200 people homeless in a couple of hours. The fire continued down the valley towards Queenstown, igniting coke stacked along the railway and setting fire to the scrub at the rear of two hotels. Buildings in Queenstown were in some danger, but a sudden change in wind direction from the northeast to the west reduced the danger. Fortunately the fire by-passed the smelters and the Company sawmill, but telegraphic communicati[illegible] between Queenstown and Gormanston was cut. Scandal followed the fire when the local press correspondent reported that some bushme[illegible] after rolling barrels of beer from one house, occupied their time

"SNARLING AND FIGHTING" (10) in the smoke haze. The Penghana residents were accomodated in Queenstown and State-wide relief funds were organised. Within a week the general manager of the Company posted a notice forbidding the re-erection of buildings at Penghana. Those whose homes survived the blaze soon followed their more unfortunate friends to Queenstown. Within a few years the town was no more than a memory and was soon partly buried by the black slag dump. The destruction of Penghana provided an impetus to the growth of Queenstown.

(10) Ibid: Vol. VII, No. 53, December 14th, 1896.

CHAPTER TWO.

THE SITE AND ITS DEVELOPMENT.

THE SITE.

The site of Queenstown was selected originally to avoid the effects of smoke and sulphur from the smelters, situated a mile north of the town in the Queen Valley. This plan was not successful and the town still received the full blast of the smelters, particularly when a northerly wind was blowing. The town, at most a mile wide, is aligned north and south for two miles along the Queen River valley. The main part of the town occupies a natural amphitheatre at the foot of Mr. Owen, but extensions of flat land to the north and south have been utilised for building purposes and give the town an elongated form. Surrounded by mountains and hills, the amount of flat land available is limited, and the overall picture is one of a compact little town dwarfed by the surrounding country and cut into distinct sections by steep spurs.

The three mountains in the immediate vicinity of Queenstown are Mt. Sedgwick to the northwest, Mr. Lyell to the north, and Mt. Owen to the east. Mt. Sedgwick is the highest, being 4050 feet, and Mt. Lyell is the lowest at 2900 feet, while Mt. Owen is 3600 feet high. Mt. Lyell is in the form of a spur, running from east to west, and forming the watershed between the

Queen valley to the south, and the Linda Valley to the north. The lowest point between the two is at the Gap, about half a mile from Gormanston, and something over a thousand feet above sea-level. From here the road drops 500 feet in three miles to Queenstown, which is 400 feet below the surface of the surrounding peneplain.

To the first arrivals this was a snake infested valley of swamps and forests. Today the swamps have been drained, the forests cut down, and the snakes are no longer a nuisance. Originally the valley was covered by an almost pure stand of King Billy pines, but the never-ending demand for fuel by the smelters quickly brought about the destruction of the vegetation. The effects of the heavy rainfall and of sluicing by early miner have been to erode most if not all the top soil. The slopes of Philosopher's Ridge, along which wind the road to Gormanston, and of Mt. Lyell are bare of vegetation. Regrowth is now possible, for a pine plantation has been started to the south-east of the town, while the foothills of Mt. Owen to the east of the town are dotted with scattered shrubs and stunted trees. The steeper slopes to the west of the town are too steep to support any vegetation, while to the south the hills are covered with bracken and scrub. Facing north, however, the "moon-like" description of the town's surroundings is readily appreciated.

After the bare hills, the outstanding feature is the black

slag dump situated to the north of the town, between the Queen River and Philosopher's Ridge. This "monument to a vanished era of direct smelting" (1) is roughly triangular in shape, being half a mile long and sixty feet high. It covers an area of forty-three acres, and its surface is sufficient for small planes to land on it. Near-by, the grey mounds of iron pyrites are gradually being shipped to the Mainland, where the sulphur is extracted for fertilisers. On the western bank, between the Queen River and Raggedy Creek, is a steep knob, rising two hundred feet above the valley floor, and on which is situated the general manager's house - one of the few brick buildings in the town. Another noticeable feature is the number of ruined buildings situated at fairly high levels around the hills. These are the result of the limited amount of flat land available. Much of this was bought up in the early days by land speculators hoping for a quick profit. However, most of the miners came to the West to make their fortune, not with one, and they could not afford to pay the prices demanded for the flat areas. Consequently they pitched their tents and later built their houses at higher levels. Only when the speculators came to realise that their hopes had miscarried was the average miner able to build in a more accessible place. Today most of the houses are between 450 and 750 feet above sea-level, - or up to 300 feet above the river.

(1) Blainey: page 252.

Relief features divide the town into three fairly distinct sections. Most of it is formed in the only extensive area of flat land beginning just south of the junction of Conglomerate Creek with the Queen River in the north, and ending just north of the old cemetary site. This area extends along both sides of the river but is much more limited on the Western bank. After being joined by Conglomerate Creek, the Queen flows between two steep high spurs - Spion Kop on the east and a silica hill on the west, - about two hundred yards apart. Similarly, two spurs mark the southern limit of this area, although here the spurs are not apposite each other. North of this section two arms of settlement, one to the northeast and the other to the northwest, follow the main road outlets to Hobart and Strahan respectively. Between them are bare hills and the slag dump. The third section - South Queenstown - has always considered itself distinct from the rest of the town, although economically indistinguishable from it. South of the old cemetary site, and on the eastern bank of the river, is a fairly flat area eminently suitable for settlement but evidently also subject to floods, as it was the rather steeper western bank which was settled first. It is only since the last war that the area east of the Queen and north of Roaring Meg Creek has been developed. Except for some half dozen buildings, which include the commercial radio station, Roaring Meg Creek forms the southern limit to Queenstown. On the western bank, a spur reaches almost to the river and

constitutes a barrier to settlement.

In the evolution of the functional pattern of a town, certain functions have tended to select certain types of land. This pattern is present in Queenstown, although immaturely developed. The town was originally confined to the flat area east of the river formed by Hunter's Creek flowing into the Queen. The central business area was immediately placed on the area nearer the river, while residences gradually spread up the hills surrounding it. The industrial zone, which was the cause of the town, is separate from the rest of it, in order that the inhabitants of the settlement should not suffer unduly from the effects of sulphur fumes. The absence of any minor industrial zones within the urban area is a notable feature, indicative of its dependence on a single activity. Residences were forced through the action of land speculators to spread to the hills, but again largely owing to the dominance of a single activity there is little differentiation into grades of housing.

Certain features of the site carry a descriptive nomenclatur. Philosopher's Ridge is named after "Philosopher Smith", the discoverer of Mt. Bischoff, and Spion Kop after the famous hill in the Boer War; the Sandhills consist of a hill formed of gleaming white sand to the southeast of the town; Raggedy and the Piggery are two districts which in the early days were two haphazard areas of settlement outside the town boundaries; Conglomerate Creek and Roaring Meg Creek are two important

tributaries of the Queen.

The site of Queenstown adds to the individuality of the town. The limited amount of flat land gave a generally compact town. Its form was determined by the steep spurs which cut the valley of the Queen River into sections. There was always sufficient flat land for expansion, however, and at no time was the town forced to limit its development for this reason.

ITS LAYOUT AND INITIAL DEVELOPMENT.

Queenstown was originally known as Pokana, but this was latter changed, to the disgust of many a radical miner. The combinations of names for the two settlements in the Queen Valley caused much confusion. Jimmy the New Man refers (2) to them as the "aliases" - Queen's Crossing alias Penghana, and Pokana alias Queenstown. Exactly when the name Queenstown was first used is not known, but certainly by the end of 1896 it was the more usual name for the slowly developing township nestling at the foot of Mt. Owen.

It was quickly realised by the Company and by the Government that a new town site would have to replace Penghana sooner or later. In the middle of 1895 the Government surveyor, Selby Wilson, was sent to mark out the blocks for the new settlement. In the relatively flat area of land at the junction of the Queen River and Hunter's Creek, he laid down three north-south streets and three east-west streets. From west to east the streets

(2) Zeehan and Dundas Herald: Vol. V, No. 269, September 11th, 1895.

are McNamara, Sticht and Bowes Streets, and from north to south they are Hunter, Orr and Cutten Streets. Another main street was Driffield Street which runs from the junction of Hunter and McNamara Streets parallel to the railway line. Following this survey, about forty building blocks were offered for sale. The Zeehan and Dundas Herald published an editorial denouncing the Government for holding the sale at Strahan, and more important, requiring Penghana residents to buy blocks in the new township when in practice they would be compelled to move at some later date and in any case could not afford to pay the prices. The editorial demanded that the Government grant free land to those who through no fault of their own were likely to be dispossessed of their land (3). In fact, of course, Penghana residents, having no legal title to the land, could hardly be dispossessed of it. Nevertheless, the sale attracted numerous buyers and all the blocks were sold. Building on them was difficult as there was only a track through from Penghana. Once this was remedied, however, landowners quickly erected buildings, generally using King Billy palings. At the beginning of 1896, the town was looked on as a suburb of Penghana. There was a slight movement of population from Penghana to Queenstown, but not sufficient to decrease the rapid growth of Penghana. Once the smelters were completed, however, this movement increased, and was completed by the fire which destroyed

(3) Ibid: Vol. IV, No. 137, March 25th, 1896.

Penghana in December, 1896. All demands for services and amenities by Penghana residents were countered by the Government which indicated its willingness to provide them in the new township. Typical of this was the case of the new Post Office. The Penghana Progress Committee early in 1896 requested Dr. Abbott to approach the Government to provide a post office by renting a building as a temporary measure. The Government's reply was to the effect that they were not prepared to rent a building, and that in any case they intended to erect a new building in Queenstown. The lines laid down for streets by Wilson were cleared to form tracks, but it was not until the end of 1896 that any attempt was made to begin the formation of the roads. At first this was left to the Government, until such time as the need for local government was realised.

One of the first buildings to be erected was the Queenstown Hotel on the northwest corner of Orr and Sticht Streets. This two-storeyed wooden building preceded the construction of the railway station, and was closely followed by the building of Harvey's Hotel on the northeast corner of Orr and McNamara Streets. By the end of 1896, a third hotel was being erected on the south side of Orr Street, between Sticht and McNamara Streets. A hundred-odd residences either huts or tents, dotted the slopes to the east, extending roughly as far as Dixon Street and west across the railway line to the river. Across the river the general manager's brick house on top of a steep knob, looked

down over the straggling little town. To the north, the town extended to the Company sawmill and the recreation ground, and in the south four workers had built huts at South Queenstown Public entertainment was catered for by Cairn's Metropole Hall in McNamara Street. The half dozen or so shops were all located in Orr Street between Stichť and McNamara Streets, Justice was executed in the Company store-room near the smelters, the magistrates and other officials sitting on empty beer barrels (4). The inadequacy of the police force came under repeated attacks from the Herald. The National Bank opened an office in Orr Street in November and a savings bank was operated in conjunction with post office which shared temporary premises in Orr Street with the Mt. Lyell Standard offices. The Medical Aid Society formed at Penghana in 1895, organised a hospital for that settlement in the form of two marquees. When the new town was being laid out, they made application for a site to be reserved for a hospital. A block was set aside on the north-west corner of Cutten and Stichť Streets, and again tents were erected. This proved unsatisfactory however, and the tents were moved to the southeast corner of Cutten and Bowes Streets on a slight eminence where drainage was better (Fig. 2, Page 50).

The destruction of Penghana increased the building activity

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(4) Mt. Lyell Standard: Vol. 1, No. 1, November 28th, 1896.

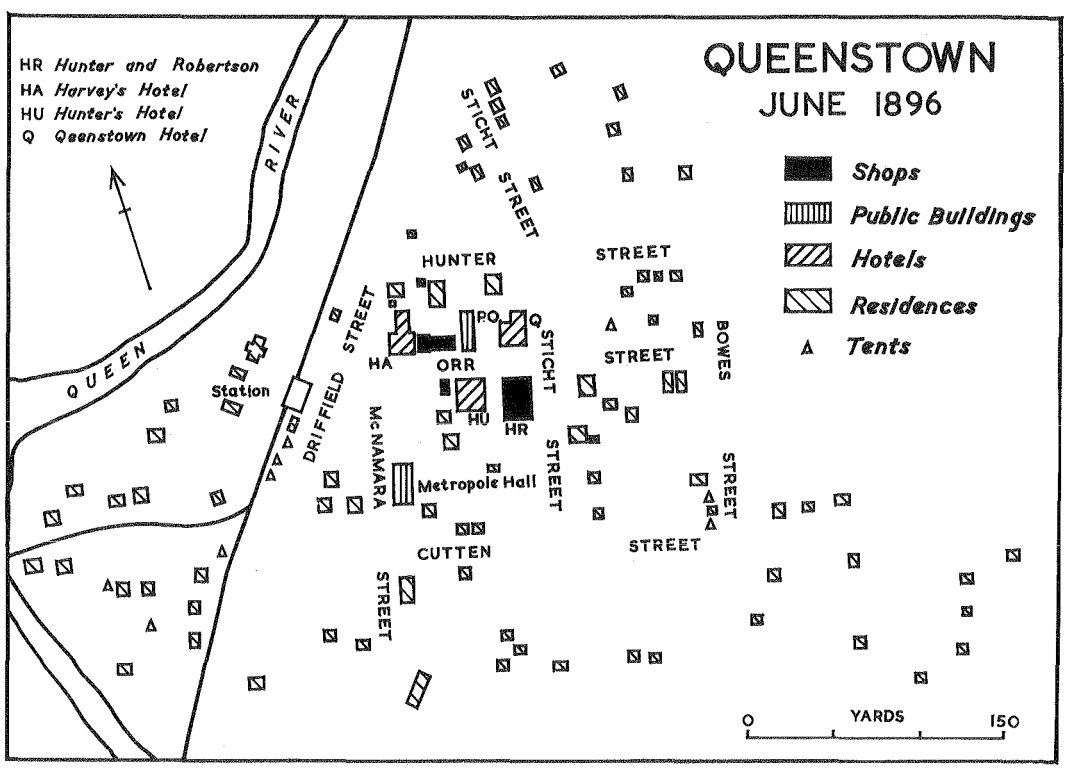

Fig. II

The functional pattern of Queenstown in 1896, based on a photograph belonging to the Queenstown Club.

As part of its assistance programme, the Government ordered Selby Wilson to survey sufficient residence areas to accommodate those burnt out. The Herald congratulated the Government on its response to the disaster, but stressed the point that these areas should be solely for the disaster victims, and not made available to those who already had their own land, or to any outsider for speculative purposes (5). A committee was appointed to be responsible for allocating land to those who needed it. With the influx of population the demand for buildings was such that frontages along the main streets shot up to boom prices and the Herald correspondent reported £6.10.0 per foot being refused for one Orr Street frontage (6). A certain amount of land speculation was inevitable and many ex-Penghanaites were forced to build high up the slopes, while the flat land remained unoccupied. The growth of the town was assured, and the building of the Post Office, the Courthouse and the Police Station was commenced before the end of the year. A butchery and a bakery began operating and several new shops were opened.

Like all West Coast towns, Queenstown was insanitary and regularly swept by typhoid epidemics. The continual cry of the people and press was for efficient drainage and sanitation of the town. Little could be done, however, until some form

(5) Zeehan and Dundas Herald: Vol. VII, No. 57, December 25th 18
(6) Ibid: Vol. VII, No. 57, December 25th, 1896.

of local government was organised. By the end of 1896 the population had reached the thousand mark, and people were beginning to appreciate the need for some governmental authority on the spot instead of leaving everything to the State Government in Hobart. This feeling of civic responsibility received an impetus with the arrival of Panghana residents. A Penghana Progress Committee had been formed in January 1896, but now that the town was no more, it ceased to function. The spirit remained, however, and was transferred to Queenstown. A further incident which probably hastened the formation of a local authority was the arrival of two Chinese to settle in the town. This evoked an outcry in the press, which claimed that a market garden within a few chains of the centre of the town would be a nuisance. A few days later the paper was able to inform its readers that the Chinese had no legal right to the land, being in fact squatters on Company property (7). Conditions were made so unpleasant for the Chinese that they were probably glad to leave the town.

The net result of all this was that a public meeting was called early in January 1897. At this meeting the life of the Penghana Progress Committee was formally ended. Its aims and rules were taken over by the newly-formed Queenstown Progress Committee which exercised many of the function of a local council (8).

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(7) Mt. Lyell Standard: Vol. 1, Nos. 2,3, Dec. 5th & 12th, 1896.
(8) Ibid: Vol. 1, No. 10, February 6th, 1897.

Thus by January, 1897 Queenstown had a population of over a thousand; it was the main settlement in the Queen Valley; it was growing rapidly; it had a measure of local government; and it was well on the way to becoming the main centre of the Lyell field. Its predecessor had been wiped of the map and, while its situation had little in its favour, it was much better than that of the Linda Valley towns. Its importance was enhanced, and its growth assured, by its rail link with Strahan. It was necessary for coaches to meet the train at Queenstown and transport goods and passengers up to Gormanston. Towards the end of 1896 the local press reported that Mr. E. C. Driffield the engineer in charge of railways, had so arranged the time-table of the train service between Queenstown and Teepookana (9) that it would be possible for "Silvertown" - that is Zeehan - passengers to travel via Strahan to Queenstown and back in the same day (10). As it also operated the other way, it was undoubtedly merely local patriotism which led the writer to give the impression that Queenstown had more to offer than Zeehan which had been in existence since the late eighties. The belief in the future growth and prosperity of Queenstown was great, and it was confidently expected that the town would have a population of possibly 40,000 within a few years. This expectation was by no means fulfilled but the next six years

(9) Until 1899 the railway from Queenstown stopped at Teepookana which was situated at the head of the navigable section of the King River. A boat carried goods and passengers to Strahan.
(10) Mt. Lyell Standard: Vol. 1, No. 1, November 28th, 1896.

continued to foster the hopes to some extent.

THE BOOM YEARS 1897 - 1903.

The years 1897 to 1903 were years of expansion and development. Spurred by the wealth of Mount Lyell, scores of companies were formed to mine every square yard of the country within two or three miles of the "Blow". Small towns sprang up overnight only to fade as quickly when it was discovered that likely ore deposits petered out. The Mount Lyell Company gradually assumed a dominant position in the field, buying out some of the smaller companies and amalgamating with others. Queenstown's population increased five-fold, and at the 1901 census (11) it was ranked as the third town in the State. While the rest of the State was in the grip of a depression the West was experiencing a boom. Wild speculation, the making and losing of fortunes, and rapid growth often followed by equally rapid decay characterised the period.

The formation of new companies was particularly rapid in 1897 when each new discovery was hailed as a prospective Mount Lyell. Many companies gained capital by claiming nearness to Mount Lyell when they had in fact only a few yards of common boundary with a section of the Mount Lyell lease some

(11) Commonwealth Bureau of Census and Statistics: Census of Australia, 1901.

distance from the actual ore body. Samples of ore sent for assaying were often carefully selected to give a high copper content. Often the deposits occurred in such small quantities as to be unpayable, but companies were nevertheless formed and capital extracted from British and Australian investors. Conditions were right for the promotors. Australia was slowly recovering from the bank crash and depression of the early nineties. British investors, attracted by the gold deposits of Western Australia, had poured money into that State and were prepared to do the same at Mount Lyell (12). The most serious rival to the Mount Lyell Company was the North Mount Lyell Copper Company which was registered in 1897. The North Lyell mine was about three-quarters of a mile north of the "Blow". While blasting for a road to it a new ore body was discovered which proved to be richer than the old. The North Lyell Company was largely controlled by James Crotty who had lost control of Mount Lyell when he was forced to sell a majority of shares to Bowes Kelly in 1891. Crotty still owned a large number of shares in the Mount Lyell Company but he resented his lack of controlling interest in it. The North Lyell mine developed and gave rise to the smelting town of Crotty, southeast of Queenstown, the port of Pillinger or Kelly Basin, twenty miles southeast of Strahan, and the North Lyell railway, all of which

(12) Blainey: page 76-77.

seemed set to rival Queenstown, Strahan and the Mount Lyell railway.

The formation of a Progress Committee for Queenstown was the real beginning of ordered development for the town, and it was fortunate that it coincided with the arrival and resettlement of the Penghana fire victims. The original survey of the town site had been confined to the flat area which had quickly been bought up by speculators. Bowing to public pressure the Government agreed that those burnt out by the fire should receive free allotments. However, it stipulated that married men should receive preference over single men, and that only those who had had huts and not tents destroyed would be eligible. Approximately one hundred lots, each of one-eight of an acre, were made available to the victims in a semi-circular area north and east of the town from the existing limits of Hunter, Duff and Orr Streets, and between Sticht Street in the west and Cutten Street in the south. Some of these sites, on the saddle between Conglomerate Creek and the town, were on what the Standard described as "rather precipitous ground", but it added that they had the advantage of being "naturally well drained, an indispensable condition for healthy houses in this rainy region" (13). In some cases the sites were so precipitous as to be pretty well useless for building purposes.

Early in February, 1897, the Standard proudly published

(13) Mt. Lyell Standard: Vol. 1, No. 5, January 2nd, 1897.

a description of the town in order to emphasise its progress (14). In six months the number of houses had increased from less than a dozen to over two hundred, and the construction of residences and business premises was under way in all parts of the town. The main building material was corrugated iron giving a more "substantial character" than King Billy palings. The east side of Sticht Street between Orr and Cutten Streets was taken over for Government buildings, the Post Office being on the Orr Street corner with the Courthouse, police quarters and school along the street in that order. The Standard lamented the placing of the school so near the business centre of the town, instead of on one of the heights around the valley. The construction of the hospital was proceeding satisfactorily and when complete would consist of two wards, kitchen and bathroom, plus a two-roomed cottage for the staff. It was from the beginning small and overcrowded, and when the town was swept by typhoid outbreaks two marquees had to be erected to serve as isolation wards. Three more hotels were planned in addition to the two already operating. One was to be opposite the State School, one opposite Harvey's Hotel on the corner of Orr and McNamara Streets and one fronting Driffield Street between Cutten and Russell Streets - the present Commercial Hotel. Shops extended along both sides of Orr Street from Driffield Street to Bowes Street and along some sections of

(14) Ibid: Vol. 1, No. 10, February 6th, 1897.

McNamara and Sticht Streets. Hunter and Robertson on the southwest corner of Orr and Sticht Streets; M'Kay, Sampson and McKinley on the northeast corner of the same intersection; and Craw Bros. and Creed on the south side of Orr Street between Sticht and McNamara Street, were the main emporiums, catering for all the needs of the population. Of the three, only Hunter and Robertson's shop remains today as F. O. Henry's store. Numerous small shops such as bootmakers, general stores, stationers, fancy goods, fruiterers, and a butchery were grouped around them. Two billiard saloons in Orr Street between Henry's and Harvey's Hotels catered for entertainment, and two building-requisites stores in McNamara Street must have done a roaring trade during the expanding boom period. Along the railway were the Company's store sheds and some of their workshops, and there was a small cordial factory between Bowes and Dixon Streets in Cutten Street. The Standard concluded on a note of warning that business might be overdone if it outran residential development (Fig. 3, page 59).

There was a continual demand by the press for the formation of a town board with greater powers than a Progress Committee which could only advise and not enforce its suggestions. Finally in May 1897, under the "Town Board Act" of 1896, Queenstown was officially proclaimed a town with a Town Board of five members (15). Immediately it tackled the problems of

(15) Ibid: Vol. 1, No. 24, May 22nd, 1897.

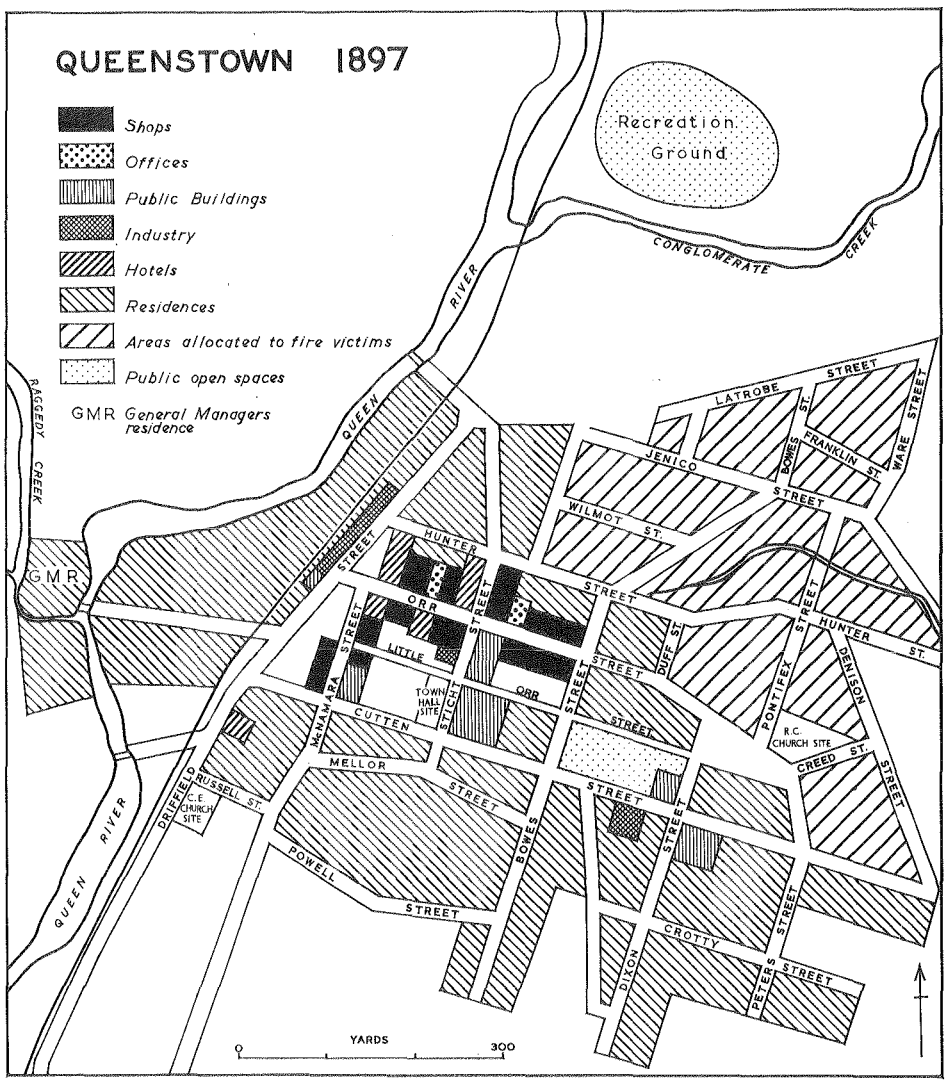

Fig. III

The functional pattern of Queenstown in 1897, derived from newspaper reports and photographs.

water and sanitation, realising that only thus would the danger of typhoid decimating the town be eliminated. The Progress Committee had continually requested the Government to supply the town with a properly constructed water supply and efficient drains but little had been done. The Board now applied to the Government for rights to all water in Hunter's Creek, for any of its watershed which was outside the municipality to be reserved from occupation; and for the right to take thirty sluice-heads of water from Roaring Meg Creek. This was granted by the Government but it was necessary to raise a loan before any construction work could be done.

Throughout 1897 buildings were being completed and new ones commenced. The dominant building materials were still King Billy palings and corrugated iron. By the end of the year the town boasted seven hotels, which catered for both the thirst of the population and the accommodation of large numbers of single men. For a while there was an acute housing shortage and, as employment at the smelters increased, the resources of the town became somewhat strained. Practically every house had at least one boarder, thus increasing the family income a little. Tents were almost as numerous as houses. The population was growing rapidly, and by April the Standard informed its readers that there were now sufficient ladies present in the town to make it worthwhile to hold balls (16). In a town

(16) Ibid: Vol. 1, No. 19, April 10th, 1897.

where men outnumbered women by nearly three to one, social functions were somewhat restricted. Marching, football and woodchopping were all popular sports, the football being played on gravel as grass could not be persuaded to grow. The brass band was a popular institution, and in 1897 it won the national championship in Sydney. Every Saturday night it played in the streets of the town, and the men returning from the smelters would spend hours marching up and down the main streets. It says much for the honesty of the town that men could safely leave a week's pay in their tents without fear of it being stolen. Wages were low, the average rate being seven shillings a day. Foremen at the smelters got £3.10.0 a week, and leading hands £3. 0. 0 (17) Such was the spirit of loyalty among the people that disaster overtaking one was felt to be the concern of all and many were the concerts and other functions organised to help some needy person or family. In August the first church - the Wesleyan, on the corner of Cutten and Dixon Streets - was completed and the first services held in it. Church attendances in the early days were generally good and church choirs were strongly supported. An orchestra of thirty players flourished. The reason for such an active community spirit is not hard to find. Isolated from the rest of the Island, and without the modern mechanical means of entertainment, the people had to provide their own amusement.

(17) Blainey: page 188

Touring companies were preceded by expansive posters and greeted with wild enthusiasm. But the people were always to provide sufficient entertainment from among themselves, and one of the local demands was for more halls in which to perform.

Towards the end of 1897 the Government vested the section on the northwest corner of Cutten and Sticht Streets in the Town Board for the purpose of erecting a town hall. About the same time the boundaries of the town were extended, to the South rather than to the North as Wilson, the surveyor, wisely disapproved of any extension towards the Reduction Works where the effect of sulphur and smoke would be even more apparent. As it was the town suffered severely. Often fogs were so thick that it was impossible for pedestrians to see each other. It is on record that a procession ended in fiasco when one section, unable to see the group in front because of the "pea-souper", took the wrong turning (18). Despite the effect of sulphur the health of the town was surprisingly good, the only exception being the periodical typhoid epidemics which continued to sweep the town until efficient water supplies and drainage systems were organised. Men with families simply could not afford to miss a day's work unless it was absolutely necessary, and accidents at the mine were comparatively rare.

The Railway War of 1898 (19) involved the sympathies of practically the whole Island. Realising the extent to which the State was dependant economically on the western mining fields,

(18) Idem: page 93
(19) Idem: chapter 13

the Government attempted to attract the trade of the West away from Melbourne. Several expansive schemes were formed to link the West with both Hobart and Launceston by rail. The route of the Great Western Railway from Launceston was actually surveyed. The Emu Bay Company was formed late in 1897 and undertook to complete the rail link between Guilford Junction and Rosebery, claiming that thereby all the trade of the region could be carried through Burnie just as cheaply as through Strahan, which was handicapped by the bar at Hell's Gates. About this time also, the North Lyell Company began the construction of a railway from their mine south through Crotty to Kelly Basin, and special shallow-draughted vessels were designed to carry the ore from Kelly Basin. The Government's decision to deepen the channel, following the wreck of two ships within three months, resulted in the collapse of the railway schemes. The Emu Bay Company continued its line and managed to capture much of the Zeehan trade, but Strahan and Kelly Basin continued to flourish as the outlets for the Lyell field.

The Railway War was in part the result of the copper boom experienced by the Lyell field. This boom found expression in Queenstown in a greatly increased population. The town became the haunt of prospectors, financiers, swindlers, investors, clairvoyants and speculators. In January, 1898, the Queenstown Stock Exchange began its brief life of four years. Land values in the town increased, and the demand for business sites in Orr Street was keen. It was in 1898 also, that a branch of the

Amalgamated Miners Association was formed, but so long as there was any unemployment it remained a weak force, existing mainly to provide accident and sickness benefits for members. Here again it was weakened by competition from the Queenstown Medical Union, the Mount Lyell Medical Union, and several friendly societies. Dependent entirely on contributions from members, these societies and unions reflected the community spirit among the people. Although it could do little to improve the conditions for the workers, the A.M.A. could and did protect the existing position and a rumour that Chinese were settling at Strahan in considerable numbers evoked a furious outburst. At a monster rally the speakers referred to the sacrifice at Eureka as being for Australians, not Chinamen. (20). The rumour was entirely unfounded, but it showed the feeling of the people.

Development within the town continued. Street formation was rather more rapid, and by March the Town Board could claim that in the six months of its existence it had made it possible to approach all but a dozen or so houses by good roads (21). Four brick shops in Orr Street, with quarter-inch thick plate glass windows, were described as being equal to those found in any colonial town (22). The National Bank opened its own premise

(20) Mt. Lyell Standard: Vol. 2, No. 124, July, 16th, 1898.
(21) Ibid: Vol. 2, No. 86, March 2nd, 1898.
(22) Ibid: Vol. 2, No. 75, January 22nd, 1898.

and the Catholic Church at the corner of Pontifex, Creed and Orr Streets was completed and opened. By the end of 1898 the Anglican Church - St. Martin's on the corner of Russell and Driffield Streets - had been dedicated. The Municipal Offices were completed, and a second storey was being added to the Post Office to house the telegraphic equipment which would link the town with Hobart. A second hall - Taylour's in Bowes Street - relieved the strain on Cairn's in McNamara Street. Employment by the Company rose to about two thousand, giving a total population in the town of between four and five thousand. The Government finally passed a bill allowing the Town Board to raise a loan of £3000 for the water supply and the abattoirs, and work was commenced on both these projects almost immediately (23). The road to Gormanston remained a boggy track, and horses frequently sank up to their knees in mud. Carters charged the then exorbitant rate of twenty-five shillings a ton, but little was done to improve the situation.

Early in 1899 a correspondent to the Herald was able to describe in glowing terms the change which had taken place in Queenstown. "Let anyone contrast", he wrote, "the Queenstown of today with what it was on the memorable day of the Penghana

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(23) Ibid: Vol. 3, No. 184, January 17th, 1899.

fire, a couple of weeks over two years ago. Then the town was practically a ti-tree swamp, with about a dozen buildings on it and not the semblance of a path or roadway, while anyone stirring out after dark without a lantern stood a very good chance of being drowned or bogged - now Queenstown is the fourth town in the colony with a population of between 5000 and 6000 souls - a town in which pretty well all the appurtenences and luxuries of civilisation are obtainable, and peopled by a community which for progressive ideas, business energy, and general go-aheadism will compare favourably with any mining community in Australia, and it must be remembered that it is a 'community of workers where every man has to do his share'. And this gratifying state of affairs; this springing up within two years of one of Australi most prosperous communities; this conversion of a barrent wilderness of swamp and scrub into a well laid out town with streets and roads which are the admiration of everyone who walks them, is due wholely and solely to the energy and enterprise of the Mount Lyell Company". The writer pointed out that the Company gave employment directly to 1600 people, and had a weekly wage bill of £4-5000. "And this", concluded the correspondent, "will last for years". (24).

The expansion of, and high slopes in, Queenstown continued for another two or three years. At the beginning of 1899

(24) Zeehan and Dundas Herald: Vol. IX, No. 68, January 2nd, 1899.

the Convent School opened. Construction of the water supply was begun and completed by March. The completion of the additio to the Post Office aroused caustic comment from the Herald, whic said: "The architecture may be fairly described as belonging to the Braddonesque era, during which a number of public buildings erected in Queenstown seem to run very much on the lines of a cross between a woodshed and a goathouse" (25). The hospital also came in for criticism, but from a party of doctors who visited the town. They described it as quite inadequate and unworthy of a town of such a size as Queenstown. This, combined with the propoganda campaign of Dr. Abbott and the hospital committee, resulted in the selection of a new site of six and a half acres for the Hospital. The hill above McNamara Street was selected as being well drained and likely to escape the fogs which settled lower down in the valley. The building was to be a more permanent and solid structure than previously. Two additional newspapers were planned but failed to eventuate (26). In general, it was mainly small shops rather than larger stores which were built during the year. Small shopkeepers were active in the retail trade. One retailer requested permission from the Town Board to suspend a sun blind from the verandah in front of his shop. Permission was refused as contrary to by-laws, with

(25) Ibid. Vol. IX, No. 164, April 24th, 1899.

(26) Ibid. Vol. IX, No. 309, October 12th, 1899.

the comment that it was unnecessary anyway as the sun had not been seen for a month. The hotels now numbered eight. Five were in Orr Street, one in Bowes Street, one in Driffield Street and one on the corner of Stieht and Driffield Streets. Houses sprang up on all the hills and on both sides of the river. Cutten, Dixon, and Bowes Streets were popular residential areas, and numerous houses were built along the railway line towards South Queenstown. The need for some sort of street lighting in the town was the subject for much discussion but little was done for the moment. Another community need much debated was the establishment of a fire brigade but again little was done. In November 1899 Mrs. Stieht hammered in the last nail and punched the first ticket for the Teepookana-Strahan section of the railway from Queenstown (27). This was the beginning of the end of isolation for Queenstown, but the end of the end was not reached for another thirty years.

The expansion reached its maximum at the beginning of 1900, and after that a slight decline set in. Two hotels in McNamara Street - the Metropole and the Oriental - were built, and the Empire on the corner of Driffield and Orr Streets completed. The water supply was improved and the abattoirs opened. The inadequacy of school accommodation in the district was stressed and additions were made to the State school. The number of houses, both on the outskirts and near the centre of the town, increased, and the large number of business premises gave an air of stability and

(27) Mt. Lyell Standard: Vol. 3, No. 429, November 1st, 1899. See also Footnote (9).

permanency to the town. A row of two-storey shops and offices were built on the southeast corner of Sticht and Hunter Streets, and it was becoming increasingly difficult to find sites for business premises along the main blocks. Dr. Abbott, the district health officer, estimated that at the end of June, 1900, the population was around 5,300 (28). He based this on 1125 inhabited houses each averaging 4.7 persons. The number of births for the six months was eighty-one, and the number of deaths was twenty. By 1901, however, when the census was taken, the population was only 5051. The reason for this decline was the growing uncertainty as to just how long the "Iron Blow" would last. In 1896 the ore mined averaged six per cent copper. By 1898 it had fallen to under four per cent copper, and in 1900 it was only two and a half per cent copper (29). When he arrived Sticht estimated the life of the mine to be at least twenty-five years, but four years later, in a special report to the directors he disclosed that mining would be uneconomical after 1904. A second problem was that of finding silica in order to separate the iron from the copper inside the blast furnace. A silica quarry was located near Queenstown across the river from Spion Kop. The quantities of silica needed involved mining one ton of silica for every three tons of ore. In order to offset both the low copper

(28) Mt. Lyell Standard: Vol. 4, No. 682, August 27th, 1900.

(29) Blainey: page 129.

content and the costs of quarrying silica the Mount Lyell Company arranged to buy ore from other mines in the district which were mining ore with a high silica content. Later several of the small companies in the field were bought out by the Mount Lyell Company. However, the continuing fall in the grade of ore and the disheartening reports sent out by Sticht weakened the confidence in the mine and share prices fell, as did employment and town population. The position was aggravated by a world wide decline in copper prices and by a slight Australia-wide depression.

The 1901 census (30) listed Queenstown as the third town in Tasmania after Hobart and Launceston. With a population of 5051 it was just ahead of Zeehan whose population had declined over the past three years from over 6,000 to 5014 in 1901. Queenstown accounted for about 48 per cent of the total population of the Lyell electoral division, with males constituting 61 per cent of the town population. It is interesting to compare the sex relationships by age-groups. In the under-21 group females slightly outnumbered males, despite the fact that the number of male births in the town exceeded the number of female births by 25-30 per cent. In the over-70 group, the balance was very slightly in favour of males but not sufficient to be of any importance. In the 20-70 age group - the main working group

(30) See Footnote (11).

males outnumbered females by two and sometimes three to one. This was particularly strong in the 40-50 age group. The reason for this predominance of males is that the crude conditions of a mining town had little attraction for women. Quite a large number of men were attracted by the money to be made. Either they would make sufficient and move on, or they would settle down, earn sufficient to build a house, and then be joined by their families. The effect in both cases was that at any point of time there was a large proportion of men without their families and of the working age group. Just over 86 per cent of the total population in the electoral division were born in Australasia; 11 per cent were born in the United Kingdom; and two percent were of foreign birth. The dominant foreign nationality was German which accounted for 31 per cent of the group. Next was Sweden and Norway with 20 per cent, followed by Italy with eight per cent and China with six per cent. Of those born in Australasia, seventy per cent were born in Tasmania, while of the other States, Victoria supplied 22 per cent and New South Wales four per cent. New Zealand accounted for two per cent. England was the birthplace of 57 per cent of those born in the United Kingdom, with Ireland accounting for 25 per cent and Scotland for 16 per cent. Three denominations dominated the religious structure. The Church of England - 44 per cent; Roman Catholicism - 28 per cent; and Methodism - 17 per cent, accounted for 89 per cent of those who gave their religious affiliations.

Practically all the Christian denominations were represented and other religions such as Judaism and Buddhism claimed one or two adherents. The figures for places of birth in particular indicate the attractive power of mining and the variety of backgrounds out of which it was necessary to weld a community.

That this was in fact being done was quite obvious. A correspondent to the Daily Telegraph in Launceston, who signed himself "A Visitor", described Queenstown as "the best township on the West Coast". It had "good substantial buildings, with hotels equal to any in Launceston". And finally, its "principal thoroughfares remind one of Brisbane Street". This was praise indeed - that a mining town should be ranked with the second city of the State. The only complaint which "A Visitor" had to make was concerning the "collection of small huts on the outskirts in a hollow or flat surrounded by hills, with a creek running through the centre, from which the inhabitants obtain their water supply. The stream receives the drainage from both sides. The locality is appropriately named "The Piggery" and one wonders the inhabitants are not all down with fever". The Standard in quoting "A Visitor" hastened to correct a false impression regarding the Piggery, saying that "the inhabitants do not depend on the creek for their water supply, for there are several pure springs in the vicinity, from which the majority of inhabitants obtain their water" (31). Nevertheless, the fact

(31) Mt. Lyell Standard: Vol.6, No.1125, January 31st, 1902.

remained that the Piggery justified its name.

In August 1901 a fire destroyed the Queenstown Hotel and a new brick building replaced it. This, with the newly completed post office on the opposite corner, aroused favourable comment from the Herald which regarded them as great architectural improvements to the town (32). In the same year the Queenstown Club opened its premises in Orr Street in the building until then occupied by the Standard. By this time the number of hotels had reached thirteen with another two at Lynchford, a mile down the line. The hospital was moved to its new site and the old building converted into a public library and reading room. Many parts of the town were still insanitary and frequent petitions from groups of residents were sent to the Town Board. Some attempt was made to improve conditions for night travellers by erecting acetylene lights at outlying parts of the town. The Mount Lyell Company was approached with a request to supply the town with power for electric lighting, as it was making modifications to its slag pumping machinery to enable it to be worked by electricity. Increased power output would provide sufficient electricity to light the town. The directors refused the request, however, saying that for the moment theyhad no excess power (33).

The growth of Queenstown was so rapid in the first four years of its existence that by 1901 it was competing with Zeehan for supremacy on the West Coast. Zeehan was the main centre for the

(32) Zeehan and Dundas Herald: Vol. XIV, No.29, November 15th 1901.
(33) Minutes of Town Board meeting, November 27th, 1902.

West throughout the nineties but by 1901 it was beginning to decline. Its population was slightly below that of Queenstown - 5014 as compared with 5051 - but in terms of services and facilities available it was still the main centre. This was mainly due to inertia, the services continuing to be provided despite the population decrease. With certain modifications it is possible to apply to the West Coast towns a method for determining the relative importance of the centres (34). The modifications are necessary partly because of the somewhat specialised and isolated nature of the towns, and partly because of the time factor. The criteria evolved include the presence or absence of cinemas which it is manifestly impossible to use in determining the hierarchy for the beginning of the century. Some of the criteria listed can be applied, however. Banks, hospitals, schools and newspapers were just as important then as now. The application of these four indices to the towns gives some indication of the degree of development of each. Zeehan, for example, had three banks and a post-primary school, whereas Queenstown had only two banks and no secondary school. Both centres, however, boasted a hospital and a newspaper. Gormanston and Strahan each had one bank, and Strahan had a hospital, but neither had a newspaper nor a secondary school. In terms of services available, then, Zeehan headed the hierarchy with Queenstown following. But there is no doubt that at this point in time Queenstown was of greater importance. Its growth had

(34) Smailes: The Urban Hierarchy of England and Wales: Geography 1947.

been so rapid that the development of services had been unable to keep pace with population increase. At Zeehan, on the other hand, the decline in population had not as yet influenced the number of services provided. The position of Gormanston and Strahan is notable. Gormanston had a larger population than Strahan, but partly because Gormanston was closer to Queenstown, and partly because Strahan was a transport centre rather than a mining town, the services available to the port were greater than those in the mining town.

Throughout 1902, and in the first half of 1903, efforts were being made to amalgamate the two major companies working on the Lyell field. The silica deficiency in the Mt. Lyell ore could very well be overcome by combining it with the silica-rich North Lyell ore. The Mount Lyell Company had been buying North Lyell ore since September 1899, and Sticht knew that it was satisfactory. As early as February 1900 came the first suggestion for amalgamation, but the North Lyell Company indignantly rejected them. In 1901, the North Lyell smelters were fired for the first time at Crotty, but they proved to be inefficient and slow, failing to smelt large lumps of ore and needing expensive coal instead of wood. The production for fifteen weeks equalled that of two days at Queenstown. The trouble was partly due to the size of the furnaces which were only about half the size of Sticht's, and partly to the desire of the Company and the managers to reap quick profits. This was understandable, since the share-holders

in six years received no dividend at all, and the directors knew that unless they could produce some evidence of profit they would lose any support they might have. Slapdash methods, however, were not the way to earn profits, and personal differences between the metallurgist and the mine manager split the Company in two. A new metallurgist was appointed and he attempted to copy Stieht's smelting methods but with little success. By 1903, it was obvious that for both companies a merger was the only solution to their problems. The North Lyell Company would gain the support of a well established and profitable company. It had debts of nearly a quarter of a million pounds; the contract to sell ore to the Mount Lyell Company had ended; and it was unable to secure sufficient rich ore to make it worth while to send it to England to be smelted. A merger would enable the Mount Lyell Company to obtain all the siliceous ore it required; while at the same time the Iron Blow was becoming perilously poor and narrowing, indicating that it would soon be cut off by barren rock. Selective mining was a last desperate effort to conceal the position, but by 1904 working at a loss would be inevitable. Such was the position that the board of the North Lyell Company in London sent out two independent experts to report on the position with a view to amalgamation. The experts discussed the situation with the Mount Lyell Company directors in Launceston, and drew up an agreement whereby half the shares of an amalgamated company would go to Mount Lyell, and half to North Lyell, shareholders. After some delay the London

Board agreed to the terms, and in May 1903 a provisional agreement was signed.

The problem now was - which of the two smelting towns, the two ports, the two railway lines, would survive? Crotty and Queenstown, Kelly Basin and Strahan, would not both be supported by a single company. In each case, one was doomed to extinction. Each had certain advantages and disadvantages. Crotty was on a somewhat better site, and the railway line connecting it with the port of Kelly Basin had a much easier grade than the Mount Lyell line. Although seven miles longer, the North Lyell line could carry loads nearly three times as heavy as could the Abt engines. Kelly Basin was reported to be a far better port than Strahan, but there is little evidence one way or the other. It was considered quite possible that the Queenstown smelters could be dismantled and transferred to Crotty to replace the inefficient North Lyell ones. Shrewd business men reasoned that the costs of this operation would be repaid within five years by the saving in rail freights. Finally, a limestone supply nearby would provide the necessary flux material, especially as the deposit proved to be even larger than was at first thought. The population of Crotty was firmly convinced that their town was destined to be the future smelting city of the West. Houses, shops, a church, a school, and a hotel had sprung up within a few months, and the five hundred odd inhabitants foresaw a bright future. Queenstown was a poor site for a town, and its steep railway line severely limited its trade with the rest of the world. Its only

advantage seemed to be the smelters. But unlike Crotty, Queenstown had rail links with Zeehan and Burnie, and thus Hobart whereas Crotty was dependent on shipping which, in Macquarie Harbour, was unreliable. In terms of population, it was inevitable that Crotty should perish. Whichever town was lost, the effect would be unemployment and the ruin of hundreds of properties. Economics dictated that Queenstown with a population of 5,000 should win. But the deciding factor was a personal one, as is often the case in great issues. Sticht regarded his Comapny as the victor in the duel, and therefore considered that he should dictate the terms of victory. The brick house which he had built on the west bank of the river represented a sound investment for him, and he saw no reason to abandon it. Queenstown owed its continued existence, and Crotty its decay, to one brick house.

GROWING STABILITY 1903 - 1922.

The effects of the amalgamation were felt immediately. At Crotty the news was received quietly, but within two days it was impossible to sell a house there and already about half the population had moved away to tramp the streets of Zeehan and Gormanston in search of work. Houses were left deserted or sold at auction for mock prices. A new two-storey brick hotel was apparently left deserted without having sold a pint of beer. "Within three weeks, a town of nine hundred people was almost deserted and grass was sprouting in the streets" (35).

(35) Blainey: page 152.

Queenstown, which had believed itself doomed, received the news of its reprieve with great excitement. Whereas previously the thirteen publicans would have sold their hotels for a fraction of their value to any buyer who came forward, now there was a boom in land values and both business and residential sites became scarce. A slight increase in population resulted from the movement of people away from Crotty and Kelly Basin. Apart from the initial excitement, however, Queenstown had little cause to celebrate.

Unlike the previous six years, the years from 1903 until 1922 were, overall years of steady development. The rapid expansion of the previous period had expended itself, and it was now a time more of consolidation than of expansion. It was a period of strained employer-employee relationships which, when settled, were followed by a degree of amity unknown elsewhere of the greatest mine disaster ever known in Tasmania; and of the effects of the World War on the industry. Despite the amalgamation, it seems unlikely that the Company would be able to continue operations after 1907, when it was expected that existing known ore reserves would come to an end. The Company instituted a vigorous exploration programme for new deposits, while at the same time Stieht inspected scores of mines which had failed, in the hope that with Company support they might become profitable concerns. He was disappointed, however, and the intensive geological explorations yielded little. However, drilling at

North Lyell was amazingly successful. At each new level, the quantity of ore was found to be far in excess of expectations. The reason was that the ore-body occupied a synclinal position in the strata and widened with increased depth. Within three years, the known ore reserves increased from 170,000 tons in 1904 to 438,000 tons in 1907, and reached 710,000 tons in 1908 (36). Such wealth was unbelievable and the directors, after three years, called off the exploration campaign. The strike of 1911, and the fire of 1912, were storms successfully weathered by the Company - so successfully, in fact, that employer-employee relationships reached a high peak of goodwill which has not been lost. This is due in large part to the welfare policy instituted by the mine manager, R. M. Murray, immediately after the fire, and which he looked on as self-preservation. The War resulted in a change of customers for Lyell. Whereas previously, much of its copper went to Germany, now Britian became the chief purchaser. Increased prices for copper during the War were followed by a decline afterwards. By 1920 the Company was mining at a loss. The threatened closure of the works was averted by a last minute compromise between the directors and union officials on ways and means to cut costs. One involved the dismissal of nearly a thousand men, cutting the Company's employment figures by half. The period which began on a note of hope ended on one of near despair.

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(36) Idem: page 171.

By 1903, Queenstown had reached its maximum size. Shops extended along both sides of Orr Street, from McNamara to Bowes Streets, and along McNamara Street from Orr Street to Cutten Street, and retail area thus forming a "L"-shape. A few shops were to be found in Cutten Street, but there were no neighbourhood stores scattered through the residential areas. The town was still sufficiently compact for the main shopping area to serve adequately the entire community. The fourteen hotels of the town were generally located on fairly close proximity to the centre of the town, seven of them being at points within the retail section. Thus, two establishments were to be found opposite each other in McNamara Street on the north side of Cutten Street. The three corners of the intersection of Orr and McNamara Streets were the sites of public houses, as was the north-west corner of Orr and Stich Streets. The seventh hotel was situated on the south side of Orr Street between McNamara and Stich Streets. The other seven were scattered around the edge of the town-centre. There was the Imperial on the corner of Stich and Driffield Streets; Clear's - now the Gaiety - on the south-east corner of Orr and Stich Streets; the Exchange on the south-west corner of the same intersection; the Railway - now the Commercial - in Driffield Street opposite the station; one opposite the Hospital steps in McNamara Street; one on the corner of Bowes and Hunter Streets; and finally one at South Queenstown. Houses covered the lower slopes of all the surrounding hills. The number of houses on the west bank of the river

and at South Queenstown was steadily increasing as roads were formed and services provided. Houses extended along both sides of the railway line as far south as the old cemetery site. To the north, the Piggery was still an eyesore and a health danger. To the east, a more or less continuous belt of housing covered the slopes to about the 800 foot level. Weatherboard and iron had by now replaced King Billy palings and shingles as the main building materials. The more recent hotels were built of brick and concrete with galvanised iron roofs. Shops generally were of iron walls with wooden frontages, and some of the houses constructed about this time followed this pattern. Communications with the outside world were as difficult as ever. The road to Gormanston remained a boggy track, dangerous to men and beasts. The Strahan track was suitable only for walkers. The town was entirely dependent on the steep narrow railway for the movement of goods in and out of the region.

Once the first excitement of the merger had worn off, the town experienced a slight decline. The price of copper on the world market remained low. While the siliceous ore of the North Lyell mine aided the smelting processes, there was not great increase in known reserves, and it still seemed inevitable that the Company would be forced to close within a few years. Sticht himself thought that the mine would last for perhaps five years, but certainly no more. The effect on the town was a slight but noticeable exodus of population. The Herald - the Standard

ceased to publish in 1902 - reiterated constantly that there was a bright future ahead for Queenstown and that the mine was in no danger of closing. The various clubs continued to operate and the band gave its weekly performance. On the other hand, advertisement indicating houses and properties for sale, and vacancies for boarders, as well as a scarcity of domestic labour, would indicate that certainly not everyone had the faith of the Herald in the future. Several times between 1904 and 1907 the Herald commented on the fact that the paysheet of the Company was lower than for some time past, due to the insufficiency of ore to keep all the smelters in operation. The Town Board endeavoured to keep up appearances and made considerable improvements to the recreation ground in the shape of dressing sheds, a small grandstand and other facilities. In 1904 electricity was switched on to light the town, the Company selling it to the Board which was able to retail it at about one penny per unit. The Board also installed a sewerage system for the central part of the town. Despite the difficulties, it did not attempt to increase its rates, and in 1906, the Chairman, in his annual report (37), was able to say that Queenstown had the lowest rates of any town in the State. By this time the price of copper had risen and the effect on the town was noticeable, for a visitor about this time expressed his amazement at the "evidence of a live and prosperous community" (38) as seen in the streets and buildings, in contrast to the usual mining town comprising a

(37) Zeehan and Dundas Herald: Vol.XVII, No.155, April 16th 190[illegible]
(38) Ibid: Vol.XVI, No. 104, February 13th, 1905.

hotel, store, and post office, and a happy-go-lucky class of people. With the rise in copper prices, many of the mines which had been forced to close in 1903 were reopened and the mining towns of Linda and North Lyell boomed again. The division between Queenstown, the smelters' town, and the mining towns was most marked. The cheaper living costs and the relatively brighter lights of Queenstown did not outweigh the advantages which Linda and North Lyell had in being close to the mine. Some miners were prepared to spend two hours each day walking to and from work and thereby enjoying a slightly more congenial site. But most of the miners preferred to be close to their work. At the same time, many of the smelter employees in Queenstown were complete strangers to the mining towns, generally not having even seen them. The general atmosphere of the towns was quite different. While Queenstown had a reasonable degree of order and community spirit, the mining towns were disorderly and boisterous.

The discovery of the New Development Ore Body in 1907 acted as a tonic to the Company. Combined with the increase in copper prices, the future looked very rosy. Towards the end of the year the Town Board held its last meeting as such before being reformed as a municipal council under a warden. A second primary state school was built for the town at South Queenstown, and some additions were made to the Central State School. The high attendance percentages recorded by the schools was frequently commented on. One possible reason for this is given as being

the need to send the children to school in order to ensure that the breadwinner of the family could get enough sleep if he was working on a late shift. Whether this did in fact operate is difficult to ascertain. It has also been explained as being the result of a great interest in education, resulting from a deficiency of it on the part of the parents, who therefore insisted that their children take advantage of the facilities provided. Again, it is difficult to prove whether this had any bearing on the situation, but it is certain that school attendances were generally higher in the West than elsewhere in the State. Thanks to the generosity of the Company, the hospital was able, about this time, to install a new X-ray plant. The dearth of domestic labour again caused comment, but, said the Herald, it was due to "the climate and surroundings, even though hours and wages are often better than in many cities" (39). The electric lighting system was extended to provide most streets with adequate lighting. Improvements to the library were completed. The wooden tennis court, laid down in 1897, was replaced by an asphalt one. By this time, gardens were coming into evidence and a horticultural society was formed and held two shows every year. The gravelly surface over peat did not encourage growth any more than did the sulphur fumes but enthusiasm and hard work overcame most of the difficulties. The local pride received a blow when the Governor visiting the West Coast described Queenstown as "hot and ugly". The charge was hotly defended and it was politely suggested to

(39) Ibid: Vol. XIX, No. 97, February 5th, 1908.

the Governor that if he could not say something nice about the town then he should say nothing (40).

The census of 1911 (41) revealed certain changes in the population structure of the town. It is necessary to remember however, when comparing these figures with those of 1901, that the earlier ones were based on the electoral division, while the 1911 figures refer to the municipality. Over 96 per cent of the municipal population was found in the town as compared with 48 per cent of the electoral division population. The population of the town declined over the decade, from over 5,000 in 1901 to less than 4,000 in 1911. Of this, 56 per cent were males giving a ratio of one female per 1.2 males - a distinct improvement on the situation in 1901. In the twenty to seventy age group the proportion was one female to 1.5 males, while in the under twenty and over seventy groups the ratios were more or less equal. There was, however, a noticeable increase in the number of females in the 30-35 age group - more in total numbers than in the 20-25 age group in 1901. There was also a significant rise in the numbers of the under ten group, indicating a high birthrate. There was a slight change in the structure according to birthplace. The percentage of Australian-born increased at the expense of those born in the British Isles, while the proportion of foreign-born remained about the same. Australian-born supplied

(40) Ibid: Vol. XXI, No. 116, February 28th, 1910.

(41) Census of Australia, 1911.

92 per cent of the total population, with 81 per cent of these being Tasmanians, and 14 per cent Victorians. Of those born in the British Isles, 65 per cent were English and 18 per cent Itish. Foreign-born counted for two per cent of the total population with Sweden and Germany having the greatest numbers. The Church of England maintained its position, claiming the allegiance of 45 per cent of the population. Roman Catholicism lost about a quarter of its strength, declining to 22 per cent while Methodism declined to 9 per cent. Presbyterianism increased many fold to claim 14 per cent of the population in 1911. Just over half the total population was counted as breadwinners. Of these, 40 per cent were engaged in primary industries, 86 per cent working at mining and quarrying. Of the 30 per cent engaged in secondary industry, 46 per cent worked with metals and minerals and 15 per cent in construction jobs. Commerce, transport and communications accounted for 15 per cent of the working population the professions for five per cent, and domestic service for 10 per cent. The main occupation for women was domestic service which accounted for 51 per cent of the working females. The next most important occupation was textile manufacture which employed 18 per cent of the female workers, while the professions accounted for 17 per cent, and commerce for 14 per cent. In terms of total population, then, there was a decline in the decade from 1901 to 1911, but at the same time, the sex ratios became more evenly balanced. The greater percentage of Tasmanian-

born among the population indicated a certain degree of stability within the community. It possibly also indicates that the non-Tasmanian section of the population moved to other fields. Certainly there was a regular migration of twenty to thirty men every fortnight from the Lyell field. The importance of the town both as a place of miners and of metal workers is evident from the occupation figures.

The uncertainties and problems of the decade from 1901 were reflected in the relative importance of the centres on the Coast. In terms of population, Queenstown had declined by nearly 25 per cent, but Zeehan increased by 14 per cent. Throughout its history, Zeehan has never entirely given up hope, and a faint rumour of new discoveries, or renewed activity has always resulted in a boost of population. Around 1910-11-12, there was increased output by the Zeehan smelters, which attracted to the town a large number of men eager to work in the town long associated with booms and bonanzas. Queenstown, on the other hand, was feeling the effects of uncertainties, booms and depressions, with the result that its facilities had lessened. It was still second to Zeehan, however, in order of importance. The position with regard to Strahan and Gormanston remained the same in terms of relative facilities, even though the former lost population, while the latter gained it.

Throughout the decade there was a steadily increasing development of unionism. As the number of unemployed dropped, the

bargaining power of the unions rose. One of the early leaders was King O'Malley the founder of the Commonwealth Bank. He represented the West Coast in the Federal House of Representatives and it was he who stirred the political consciousness of the miners. Many members of State Parliament came from the West, including a premier and an attorney-general. With this stirring of political thought, branches of unions were established. The Company did not oppose unions as such, but Stieht took steps to get rid of as many of the leaders as he could. By 1910-11, a slight shortage of labour and increased living costs gave the unions a chance to test their strength. The Amalgamated Mining Employees Association of Victoria and Tasmania was the main union in the field and it came to blows over the question of an eight hour day. When the Company refused to stop contract men working overtime, the union struck. It was the biggest strike the Lyell field experienced. Its effects on the town were momentous. Within a few days, several families packed their bags and moved on. Houses and properties were for sale at ridiculous prices, but there were no buyers. It was estimated that over a thousand people left within a few weeks, either by train, or by carrying their swags overland. The main occupations of those who remained were washing for gold in the creeks, and cutting timber. The first attempts at reconciliation failed. The Company was prepared to insist on an eight-hour day for contract men, but it refused point blank to re-employ the union official whose

dismissal had sparked the strike. The union grew desperate as relief money from other states failed to arrive, and finally, after seven weeks, it agreed to the Company's terms, of an eight-hour day for all workers, and the dismissal of the officia... After eight-weeks of idleness, the first men returned to work in November, with the promise from the Company of an eight-hour day and overtime pay. The loss of so many good miners because of the strike handicapped the Company when work was resumed and strengthened the position of the unions. Within twelve months the Company faced its second major disaster when fire broke out in the North Lyell mine. For nearly a week the fire burned at the 700 foot levels. Apparently only a small blaze, it caused the death of 42 men, closed the mine for over a month, and caused considerable damage to property. It inspired many acts of heroism, some of which were recognised by the Royal Humane Society; it aroused the sympathies and assistance of the whole State, and indeed Australia; and it inspired in the Company a welfare programme which has kept the field free from any major industrial disputes ever since. The cause of the fire is unknown, but the possibility of deliberate incendiarism cannot be ruled out. An interesting aftermath of the fire was a claim by the local medical officer that the sudden increase in the number of boys born was nature's way of replacing the men lost in the fire (42).

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(42) Examiner: March 23rd, 1957.

During the three years prior to the outbreak of the War, Queenstown received a steady flow of Maltese migrants, who were engaged by the Company in the construction of a power house at the foot of Lake Margaret. The numbers were such that accomodation in the town was taxed to the utmost. The suggestion that hydro-electricity be used for the smelters was first made by Dr. Peters in the 1890's, but the Company was unwilling to carry out the work so long as firewood was cheap and the reserves of ore were small. By 1911, however, known reserves of ore were expected to last at least ten years. At the same time the cost of cutting wood had been steadily increasing, to such an extent as to become almost prohibitive. Stitcht estimated that so long as the price of copper did not fall, the reserves in the mines were sufficient to pay for the works at least twice over. The work involved building a tramline across Howard's Plains, a concrete dam, pipeline, powerhouse, transmission lines, and the necessary machinery. It took until November 1914 to complete the works, but after the power was connected to the smelters, only two air compressors at the Blow continued to use wood as fuel. The success by the Company in utilising the resources of Lake Margaret inspired the State Government to begin the development of hydro-electric schemes throughout the Central Plateau, and two years later the Waddamana power station generated its first power. The sudden decrease in the demand for wood as fuel caused an exodus of large numbers of timber-

getters. Many of the small settlements along the railway line were denuded of population almost over night.

The year prior to the outbreak of war saw the opening of a School of Mines for Queenstown. An attempt had been made in 1904 to organise such an institution, but it received no government subsidy, and had to rely solely on student fees. Lack of organisation and funds soon brought about its abandoment, and its place was to some extent filled by the Mt. Lyell Mechanics Club, which sponsed frequent lectures and classes. In 1910, the Government promised £600 towards a building, but the construction of this on the corner of Stichbt and Cutten Streets was delayed until 1912. In June of this year a committee was appointed to manage the affairs of the new school. By 1913, however, a director had been appointed. The Government guaranteed a subsidy on condition of a similar amount from the Company. Almost immediately, it was found to be too small and within two years a new site was acquired, on the corner of Driffield and Hunter Streets. The delay in the construction of the new buildings was considerable, and in the meantime several buildings around the town were taken over. Before it was completed, the Technical Branch of the Education Department took over the control of it from the committee. When it was finally completed in 1920 the new school was well equipped, with sufficient rooms and laboratories to teach all branches of technical education. The old building was taken over by the Council and converted into

a public library and reading room. The old library building, which had been the original hospital, was pulled down.

The beginning of the War saw a greater degree of activity and prosperity in Queenstown than had been the case for several years. The town was by now quite definitely the main centre on the West Coast. Many Zeehanites moved to Queenstown in search of the work which was not offering in Zeehan. The closing down of the Tasmanian Metal Extraction Company's works at Rosebery resulted in an increase in the industrial ranks in Queenstown. Work was available in the town although accommodation became scarce. Capital was expended by business people and the building trade experienced its busiest time for several years. The Council received numerous applications to erect concrete buildings. The mine was fully manned with the pay averageing 10/- to 12/- a shift. At the same time it was noted that 20-30 men had been put off and had left the field. The agreement between the Company and the unions made after the strike was due to terminate in June 1914, and there was a certain amount of doubt as to what would happen. Actually, however, it made little difference as the welfare policy, or, as Murray preferred to call it, the "policy of self preservation", prepared the way for amicable agreement between the two forces. This policy was concerned mainly with Gormanston, where houses were renovated and cheaply rented, firewood was supplied at cost, and the sports oval regraded. This was the miners' town and the

aim of the policy was to attract the miners and keep them working for the Company. Linda, the other miners town, was ignored by Murray who considered that the town was in a worse site than Gormanston. The improved conditions at Gormanston proved to be a slow attractive force, however, as Linda was closer to the mine. However, Company sponsorship of its rival meant its inevitable decay. In Queenstown, the Company took over two of the hotels and turned them into boarding houses. Subsidies were made to the various clubs and societies, to the schools and other institutions. Holiday cottages were erected at Strahan for the employees who were also supplied with free passes on the railway. The Company sold to the Council electricity to supply the town, at such a price that the Council was able to retail it at approximately a penny a unit. The Mt. Lyell towns were probably the most highly electrified in Australia at that time. This policy was continued and developed throughout the war period. Despite the loss of about 400 men who enlisted, the mine continued to work steadily.

At the end of the war, the Company made a determined effort to reduce costs. Realising that the main expenditure was wages, it attempted to reduce them without lowering the living standard. It was able to do this by means of a cheap food campaign. It opened its own stores and butcheries in Queenstown and Gormanston, and, by selling goods at slightly above the cost value, it forced other storekeepers to keep prices down. The result was that

Queenstown enjoyed the cheapest cost of living of all Tasmanian towns.

This policy was carried out at the right moment. By 1920, the price of copper had fallen to such an extent that the Company was mining at a loss. In May 1921, the Company announced that it would be forced to close down in a month. The Unions refused to agree to wage reductions, and to alternate working weeks of 40 and 48 hours, instead of the agreed 44 hour week. On June 29th, Stieht posted a notice indicating the termination of operations. But in Melbourne, an Arbitration Court judge forced the two parties to agree to a compromise, involving acceptance of the hours demanded by the Company but with no reduction in wages for at least six months. This agreement saved both the Company and the people. Cessation of operations would have meant the ruination of three townships, and the unemployment of 5,000 people. As the largest industry in Tasmania, the effect on the Tasmanian employment scene would have been disastrous had the Company collapsed. In 1921, 16 per cent of Tasmanian unionists were unemployed, and the collapse of Mt. Lyell would have increased the figure to at least 25 per cent. The Company, however, was still forced to make certain changes. Pyritic smelting was abandoned, and the flotation process introduced to concentrate the ore before smelting it. At the same time the pay roll was cut so drastically that only half the number of men employed pre-war were still employed.

The directors reduced administrative costs and strengthened the reserve funds in order to withstand any future slump in the world price of copper. The North Lyell Railway was torn up, and economies were effected wherever possible (43).

The effect on Queenstown was serious. The reduction by the Company of the numbers of employees meant the virtual cutting of the town population by half. The result was the closure of a dozen shops and four of the hotels, while hundreds of huts and houses were abandoned and left to decay on the slopes. From being a relatively compact town, Queenstown became a collection of scattered buildings, badly in need of paint, and with all the signs pointing to it rapidly becoming a ghost town like so many others on the West Coast. The Council wrote numerous letters to different members of State and Federal parliaments, pointing out the sufferings which the townspeople were undergoing, and asking for assistance. The 1921 census (44) was taken before the worst effects were felt, with the result that the full exodus of population is not evident. The total municipal population had decreased during the previous decade by over 600, but this was small compared with the decline which was experienced in the next twelve months. The census showed that in the 20-69 age group, males still exceed females, although the ratio was

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(43) Blainey: Page 257 - 258.

(44) Census of Australia, 1921.

only 1:1.33. In the 25-35 group, females slightly exceeded males, indicating that it was probably from this group that most of those came who were leaving the district before the situation grew desperate. The population was becoming steadily more and more Australian-born - 92 per cent being included in this category, while six per cent were born in the British Isles the same percentage as in 1911 - and two per cent counted as foreign-born. The four main religious denominations remained unchanged in their position from the previous census but the figures varied somewhat. The Church of England still claimed 45 per cent of the population, while the Roman Catholic Church increased to 26 per cent. Presbyterianism declined to eleven per cent and Methodism remained at nine per cent. Whereas in 1911, 44 per cent of the population were breadwinners, now only 41 per cent were earning a living. Of those engaged in work, 87 per cent were males and 13 per cent were females. Over 54 per cent of the workforce was now engaged in mining and quarrying as compared with 40 per cent in 1911. As in 1911, the main occupations for each sex were mining and quarrying, and domestic service respectively. Mining and quarrying employed 63 per cent of the male workforce, and domestic employment was given as the occupation of 42 per cent of the female breadwinners. The second ranking occupation for males was the manufacture of metals, which covered 10 per cent, while the professions covered 29 per cent of the female workforce. The decline in the numbers of females

engaged in domestic service was a result of the War and the feeling that such an occupation was undignified. The numbers employed in professions came mainly from the nursing and teaching ranks.

In contrast to the position in 1911, Queenstown in 1921 was able to supply three of the four services required by the method (45) for determining the urban hierarchy. In addition, it had two banks, which helped to compensate for the absence of a newspaper. Zeehan had lost one of its banks - an indication of its declining importance - but the presence of a newspaper still gave it apparent pre-eminence on the Coast. The increased facilities in Queenstown were largely the result of the war which caused a boom in copper. In terms of population, the position was as in 1901, with Queenstown slightly ahead of Zeehan. The situation with regard to Strahan and Gormanston remained unchanged, with the former town having a smaller population, but greater services, than the latter.

The sense of isolation from the rest of the State resulted in a move in 1918 to have a road constructed between Derwent Bridge and Gormanston. The move was in part sponsored by Hobart businessmen who saw that the advantages of cheap communications with the West would enable them to capture some of the trade now going to Melbourne. The road to Gormanston had been improved and the completion of the link between it and Derwent Bridge would give Queenstown a second means of outlet. The agitation

(45) See Footnote (34).

was such that the Government agreed to the request, and in the summer of 1919-20, a survey party surveyed the overland track as a possible line for the road. The survey party, and the construction gangs which followed it, had to confine their work to the summer months, however, so it was more than a decade before the road was finally opened. The Council suggested in 1922, that the unemployed could well be used in the construction work, but the suggestion was not taken up. The depression had serious effects on the shipping trade. The Navigation Acts were enforced about this time, with the result that passengers were not permitted on ships not equipped with wireless. Many of the ships on the West Coast run lacked this facility, and, with a lessening in the amount of freight being carried, the shipping companies reduced the services. The Council moved that the Minister in charge of the Acts be requested to allow shipping to the Coast to be run on the old lines. In view of the urgency of the situation it was agreed to do this (46).

In 1922, Robert Sticht died at Launceston. For over a quarter of a century he had been in charge of operations at Mt. Lyell. Virtually the King of Queenstown, he had guided the Company, and therefore the town, through its early years of growth and development. He saw the town grow from nothing to a thriving centre, only to shrink to half its size just before he died. It was only by a great effort by all concerned that

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(46) Minutes of Council Meeting, November 16th, 1922.

Queenstown was able to weather the post-war depression. But having done so, it was able to withstand the world-wide depression of the next decade. The twenty years from 1903 saw a succession of peaks and depressions, culminating in a low depression which was the basis for a steady rise ever since.

CONTINUING PROGRESS 1922 - 1956.

Unlike the previous twenty years, this period began at the point of lowest ebb. The drastic employment reductions necessary to keep the Company in operation were never again to be experienced. As if taking warning from the past, the development in the next thirty or so years was of a somewhat cautious nature. No definite steps were taken until the path was properly prepared. This was due in part to the temperament of R. M. Murray, the general manager who succeeded Stieht, and who "gave the impression of solidity and caution; and in fact his chief mental qualities were of that type. He had . . . a logical and realistic outlook that was far removed from the radiant optimism of the mine managers who congregated at the Federation Hotel when he first came to Gormanston" (47). Inevitably, when a town was dependant on one organisation to the extent that Queenstown was dependant on the Mount Lyell Company, the leader of the organisation was bound to exert considerable influence over the town. This is not to say that Murray controlled the fortunes of the town in the same way that he controlled

(47) Blainey: page 257.

the operations of the Company. But it does mean that the town reflected in subdued relief the progress and development, or otherwise, of mining operations. In 1922, then, the population of Queenstown was estimated at just over 2,000, while the Company was employing an average of 900 men (48). Deserted houses in all parts of the town were silent witnesses to the inability of the mine to continue its previous rate of production. Business reached its lowest ebb for perhaps a quarter of a century. Plans for the extension of the water supply to South Queenstown, which had to rely on springs, were curtailed, and proposed extension of electric lighting likewise suffered. The events which nearly extinguished Queenstown were felt throughout the West Coast. Zeehan, Rosebery, and Strahan all felt the effects and declined accordingly.

Throughout the period, the Company made certain improvements in technique. In fact, it made more changes than in the previous twenty years under Sticht. This was probably because Sticht had inaugurated a new smelting process at Mt. Lyell, and naturally enough was reluctant to change it. By the time he died, however, his process had become inefficient due to the low grade of ore which was being used. One of Murray's first tasks was to construct a flotation plant whereby the ore was concentrated before being smelted. This was followed in 1927 by an electrolytic refinery which cut out the necessity for smelting blister copper in an anode furnace, and was able to utilise the power from the

(48) Idem: page 257.

Lake Margaret station. In the following year a long haulage tunnel was excavated, connecting the smelters at Queenstown with the North Lyell mine. The route of the tunnel closely followed that shown in a plan which was prepared by the North Lyell Company against the time when it would take over the Queenstown smelters. This speeded up to an inestimable degree the delivery of ore from the mine to the mill. At the same time it cut by more than half the number of times the ore had to be handled, thus releasing more labour for productive work. A further change in smelting technique came in 1934, when the old sintering plant was abandoned, and a mixture of concentrate and sinter was smelted directly, with a specially designed apparatus to collect any concentrate which was blown up the chimney. In the mid thirties, the Company extended its mining operations to the Royal Tharsis and West Lyell leases. Extensive drilling revealed that the two leases could very profitably be mined together by open-cut methods. With the gradual expansion of open-cut mines, underground mining declined, and 1944 was the last year in which the underground output exceeded a 100,000 tons. In that same year, Murray retired as general manager (49).

Throughout the twenties, the town gradually recovered from the shock of the threatened closure of the mine in 1921-22. As the mine itself recovered, the Company found it necessary to undertake strong measures to attract workmen. With the drastic cut in employment figures, many of the good miners had moved to

(49) Idem: page 278.

other fields and Murray found it necessary to start almost from scratch. Many of those attracted to the Lyell field were Italians, who proved to be particularly good underground miners. Most of the energy of the town, however, was concentrated on the construction of the road from Hobart. Again and again, the Council stressed the need for such a link to the Government, but a shortage of labour and lack of funds prevented its construction. One strong advocate for this road was Bowes Kelly, chairman of the Company until 1924. He owned a property in the Gretna district, only one hundred miles from Queenstown, but the journey to the town involved either a steamer trip from Hobart to Strahan, or alternatively, a 380-mile railway journey. At a time when Australia had 75 motor vehicals for each 5,000 people, the 5,000 Lyellites had one solitary motor van, and that had to be loaded on a railway truck to leave the district (50). The "roads" in the West were for the most part no more than trails, old, narrow, and winding, barely fit for pack horses or small drays, let alone motor vehicles. Not until 1928 was work actually begun on the construction of the road.

In the early twenties, reports of houses being pulled down or moved were frequent. Whereas previously, there had been vacant allotments close to the centre of the town, while the hil were comparatively densely settled, now, with the decrease of

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(50) Idem: page 268.

population, the land speculators lost faith in the continued existence of the town and sold the vacant flat areas. As a result, many of those who had been forced to live on the steep hills, moved down, leaving only concrete foundations and scattered rubbish to indicate their presence. The Hobart Savings Bank established a branch in Orr Street, giving the town two banks in addition to the Commonwealth Bank agency operated by the Post Office. The report of the Warden in 1925 (51) stated that the town generally was in a sound position as regards roads, footpaths, drains, water supply, and lighting. The degree of electrification of the town increased tremendously after the war, and particularly in the twenties. This was due mainly to the shortage of wood in the district to serve as fuel. Until the war, dead trees were being cut on the slopes near the town, but by the twenties these had all gone and the distances involved in obtaining wood made its cost prohibitive. The Company sponsored a scheme whereby electrical equipment was purchased from it on an installment plan. This encouraged the use of electricity, and combined with the low charges for power, produced one of the most extensively electrified areas of the Commonwealth. By 1928 the town had recovered from the shock of six years previously, and in the same year the State Commandant, after a visit to the town, complimented the Council on the progressive nature of the town (52).

The world-wide depression of the early thirties had few ill

(51) Minutes of Council Meeting, May 11th 1925.
(52) Minutes of Council Meeting, May 10th 1928.

effects in Queenstown, "When the price of the red metal sank to the lowest level in history, and hundreds of mines dismissed men or closed, Mount Lyell was braced for the shock, and worked at full speed, though mining at a loss" (53). While the rest of the State experienced widespread unemployment, Mount Lyell proved to be a mecca for workers from many areas, and the measures taken in the twenties now paid off. Not all the unemployed who were attracted to the West could be employed by the Company. The Council took the opportunity of a good labor supply to carry out certain municipal works. The water supply for South Queenstown was constructed and turned on in 1933. Road works which had been delayed were finally undertaken. The Gaiety Hall in Orr Street, near Dixon Street, was built in 1932, and in 1935, the Paragon picture theatre, a concrete constructio in McNamara Street, was erected. Many of the unemployed were used in the construction of the road between Derwent Bridge and Gormanston, and in 1931 about 250 men were camped along the route. In November 1932 the road was officially opened, and the isolation of the West was at last at an end. The Council also proposed that some of the unemployed could profitably be used on the construction of a proper road to Strahan. This suggestion was not taken up until 1935, however, when a start was made. The Company increased its construction-gangs employment, and rebuilt the Piggery. The Council suggested that the Public

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(53) Blainey: page 264.

Works Department should carry this out, but lack of funds prevented it from doing so. The Company, however, agreed to do the work, and built the fifty or so houses which flank the road to Cormanston. Constructed mainly of corrugated iron, the new houses were a distinct improvement on the ramshackle collection of humpies which had been built following the opening of this area by the Government to prospectors in 1898.

In the decade from 1911 to 1921, all West Coast municipalities had experienced a decline in population. This trend was continued in the 1933 census (54) in all municipalities except Queenstown, whose population overall increased by some 25 per cent in the dozen years to a total of 3,990. The sex ratio stood at one female per 1.23 males. In the under twenty age group, females exceeded males, and in the over seventy age group, males just exceeded females. In the twenty to seventy working group, males exceede females in a ratio of one female to 1.5 males. The greatest number of males were found in the 25-29 age group, and of females in the 20-24 age group. As in previous censuses, there was a continuance of the trend for a greater proportion of the population to be Australian-born, the figure being 93 per cent. The percentage of British-born continued to decline and reached 4 per cent as compared with six per cent in 1921. However, the percentage of foreign-born in-

(54) Census of Australia, 1933.

creased from two per cent in 1921 to three per cent in 1933. This was due to the influx of Italians, and also Maltese, to the mine. The Italians accounted for 30 per cent and the Maltese for 27 per cent of the foreign-born in Queenstown. All four main religious denominations appeared to decline in strength. This was in part due to the increase in the bumbers who refused to state their religion. The Church of England maintained its dominant position, but declined to 42 per cent. Roman Catholicism remained at 26 per cent and Methodism at nine per cent, while Presbyterianism decreased to just under 8 per cent. The percentage of the total population who refused to state their religion increased from less than two per cent in 1921, to nearly 4 per cent in 1933. The occupation figures disclose that the workforce in the community increased from 41 per cent in 1921, to 45 per cent in 1933. The percentages of both men and women now working increased, the working males forming slightly over 72 per cent of the total male population, as against 68 per cent in 1921, and the working females forming about 13 per cent of the total female population as against 11 per cent in 1921. Primary industry employed just under 52 per cent of the total workforce, having decreased from 56 per cent in 1921. Of these, about 98 per cent were engaged in mining and quarrying - still the main occupation of the town. Secondary industry covered slightly less than 17 per cent of the working population and of these, nearly 41 per cent were engaged in metal manufacture,

and 55 per cent in construction works, which, compared with the 18 per cent of 1921, indicates the road works, water supply, and house building noted previously. Commerce, transport and communications accounted for about 14 per cent, the professions for four per cent and domestic service for six per cent. Both the latter two classes of occupations showed a 25 per cent increase from the previous census returns. Despite the increase numbers of women working, the number engaged in domestic service continued to decline, and reached 36 per cent of the female workers. Similarly, the number of female workers in the professions declined from just over 29 per cent in 1921 to just over 19 per cent in 1933. However, domestic service still remained the dominant female occupation, with commerce second with about 22 per cent of the female workforce, and the professions third. The overall picture, then, was one of a larger population with a bigger increase in the number of males. The percentage of Australian-born persons continued to increase, at the expense of British-born, but the number of foreign-born also increased in this period. The percentage of the workforce engaged in primary industry declined slightly, but the proportion of it engaged in mining and quarrying increased. The numbers in secondary industry also increased, but those engaged in metal manufacture declined by a third while those employed in construction works trebled. The census figures, then, confirm the tendencies noted in the effects of the depression.

The relative importance of the West Coast centres underwent

a change between 1921 and 1933. Queenstown now definitely assumed the leadership which in fact it had had for some years. The population of Zeehan declined rapidly, and with it went the newspaper and one of the banks. The change was largely due to the improved communications. The Lyell Highway linked Queenstown directly with Hobart, making the coppy city the distributing centre for the Coast. Zeehan was set on the road to decline. The relative positions of Gormanston and Strahan remained unchanged.

The thirties saw considerable progress being made in a bid to end the isolation of Queenstown. As mentioned previously, the Lyell Highway was officially opened in November 1932, and a passenger and freight service soon began operating. The need to use the numbers of unemployed still in the district promoted the Council to persuade the Government to make available sufficient money to construct a road to Strahan. The twenty-six miles of road was commenced in the middle of 1935, and was officially opened in October 1937. The road follows fairly closely the track cut by the early prospectors, and it runs on the crests of the hills and ridges, rather than up and down valleys. The same year saw the completion of the Missing Link - the twenty miles of road which links Miena and Bronte Park and means direct communication between Launceston and Queenstown. The move for this road received strong support from the Launceston Chamber of Commerce, and it was probably sparked by the traditional North-South rivalry. Certainly it was reminiscent of the rail-

way war of forty years previously. In 1941 the road to Zeehan was completed, thus lessening the dependence of that centre on the railway. The council at this time also made strong efforts to obtain the construction of an aerodrome, in order to cope with emergencies. Not only in transportation but in communications also, the situation improved greatly in the thirties. 1937 was an eventful year for the West Coast. Besides the opening of two roads, it saw the opening of a commercial broadcasting station - 7QT. For the first time, West Coast residents were able to hear radio programmes with ease. The station worked in close contact with the A.B.C., and relayed the national news bulletins, as well as other programmes of interest. Generally, however, it did not attempt to be anything more than a local station, in the sense that advertising was confined to the West, and local news received preference over State news. The opening of a wireless station resulted in a tremendous increase in the sale of wireless sets, and the music shops in the town quickly realised their opportunity and became electrical goods stores.

Two important building changes occurred in 1939-40. In 1938, the Government finally agreed that the Central State School was too small and outdated, and agreed to the erection of a new buildi The existing site of the school, it was agreed, was unsatisfactory being too near the centre of the town. The weatherboard building had been constructed in 1897, when 35 pupils were enrolled. The enrollment had now reached over 400, and the cramped conditions made a change imperative. It was, therefore, decided that land fronting Cutten Street between Bowes and Dixon Streets should

be acquired. This had been a children's playground, but the Council agreed to make it available to the Education Department. A concrete building was erected, one of the most modern schools in the State, and was opened in 1939. The old site became the new playground. The second building change concerned the hospital. By 1939, additions over the past forty years had given it an operating theatre, sunroom, maternity ward, children's ward, X-ray plant, isolation ward, and extensions to the nurses' quarter. In 1930, it was registered as a training school for nurses. In 1939, however, it was burnt down, and for two years the town was without a proper hospital. The new building erected to replace it was of concrete, and equipped with sixty beds including maternity and children's wards. Two operating theatres and an X-ray plant provided the latest treatment facilities. The fact that both these buildings - the school and the hospital - were built in concrete, is indicative of the attitude abroad concerning Queenstown at this time. The majority of buildings were of weatherboard or iron, temporary affairs, as their owners intended to make some money and leave the town, if indeed the town lasted sufficiently long for them to do so. But by 1940, Queenstown had weathered the depression better than most towns, and with good reserves of ore in sight, it seemed worthwhile to build more permanent structures.

The second World War had little effect in Queenstown. A certain number of men enlisted and the price of copper rose. In order to meet the demand for copper, the Company abandoned

its policy of mining rich and poor ore together, and concentrated its efforts on the richest parts of the ore-body, leaving the waste-rock where it was. As a result, production declined as soon as the richer pockets had been extracted. For three years, however, from 1941 to 1943 the mine produced more than 10,000 tons of pure copper (55), more than any other mine on the field had ever produced in a year. By 1945, however, this policy of selective mining produced its own reward in the form of a loss on mining operations. A careful review of the situation revealed that the open-cut deposit of Royal Tharsis-West Lyell had sufficient reserves for twenty years, and undeterred by a somewhat large overdraft, the directors resolved to mechanise the mine with the latest equipment, believing that the expense involved would be worthwhile. Their belief was justified, but not until 1949, when the equipment was finally installed after long delays in arrival. The effect has been to transform the open-cut. "The miner, hanging on his rope and working the rock face with bar or jack hammer, has vanished; and his younger brother stands in the cab of a clanking, tall-masted churn drill or travels around the mine in a compressor waggon, drilling outsize boulders dislodged by the firing of the churn drill holes. The small army of mechanics, welders, and blacksmiths now work in a grey building as large as a city hall, an engineer's lotus land, with a long line of grease pits and lathes and forges so modern that the old garage on the hill seems like a grimy barn by contrast. And old Bill Lyden, whose famous fight precipitated the strike of 1911, no

(55)Blainey: page 275

longer plods with his gang through the mist.... His modern counterpart drives around the mine in a truck, and talks to his foreman by wireless" (56). As the open-cut became more and more important, underground mining declined, and in 1954 the last underground mine closed, since when there has been no underground mining at all. The open-cut today is "shaped like a huge semicircular amphitheatre, 3700 feet long and 2000 feet wide at its greatest dimensions and consisting of seven wide benches rising in steps of forty or fifty feet. The mine is an ever-changing landscape; in summer, a pattern of white, dusty roads; in creeping mist, a gloomy prison surrounded by wall upon wall of grey rock; in sunlight, as bright as a painting by Picasso with splashes of grey, yellow, fawn, brown, orange and mauve in many shades; at night, a dark hollow that is partly lit by the scattered lights of churn drills, shovels and trucks, and far dimmer than the orange lights of Queenstown shining in the valley" (57).

It has been said that few Queenstowners realised that there was a war on between 1939 and 1945. Certainly, compared with the rest of the State, they suffered few restrictions. Rationing was applied to a certain extent, but not nearly as severely as elsewhere. Visitors to the town were able to buy any quantity of such items as chocolates, whereas in other parts of the Island

(56) Idem: page 276
(57) Idem: page 276

these were severely limited; the reason being that copper was an essential item for war, and it was necessary to increase production to the greatest possible amount. To do so it was important to keep up the labour supply. In such a climate as Queenstown the labour turnover was likely to be fairly high, and would be increased by any shortages or rationing of commodities. Thus, for the same reason that the basic wage in Queenstown was higher than that elsewhere, so rationing during the war was kept to an absolute minimum, and special efforts were made to ensure that no shortage of essential items occurred. During the war years, the municipal offices were extended, and a survey of building blocks in Latham Street, behind the hospital, was carried out. The hospital was successful in obtaining an ambulance. The South Queenstown Progress Association exerted its independence of the Council by requesting the Post Master General's Department to open a South Queenstown post office (58). The request was refused on the grounds that it was unnecessary until such time as a business centre for South Queenstown developed. At that time the business centre of South Queenstown consisted of one shop, a general store selling food and confectionary. While residents of the southern part of the town had to do the bulk of their shopping in the main centre, the expense of a post office was unwarranted. It was also suggested in 1945 that the

(58) Minutes of Council Meeting, September 7th, 1944.

weatherboard building which housed the Police Station and Courthouse was unworthy of a town such as Queenstown. It was felt that a new, properly designed building, housing all governmental offices should be built (59). Unfortunately, lack of manpower caused the postponement of the plan, which has yet to be carried through. A new Methodist Church was built in 1945, on the corner of Cutten and Dixon Streets, to replace the weatherboard building which became the Church hall. Immediately after the war, Queenstown, wanting a memorial to those who had fought and fallen, decided to build a town hall as a suitable practical monument. The Council accepted an offer from F. O. Henry, the son of a pioneer storekeeper, of a block of land on the north-west corner of Orr, Duff and Hunter Streets for the hall. Labour, materials and financial problems delayed its completion until 1953.

For over 30 years, Queenstown had obtained its electricity from the Company at the cheapest rates in the whole of Australia. In 1947, however, this scheme came to an end. The Company power station was generating its maximum, but it was insufficient to supply both the town and the works, the demands of both having increased since the station was built. The position was such that the Company was selling power to the town, but having to buy it from the State Hydro Electricity Commission. Discussions between the general manager of the Company and the Council resulted

(59) Minutes of Council Meeting, October 18th, 1945.

in the town agreeing to enter the State hydro scheme, thus releasing all the power from the Lake Margaret scheme for the works. The Company agreed to pay a proportion of the electricity charges of its employees so that electricity is still cheaper in Queenstown than elsewhere in the State. Thus, after thirty or more years, one close material bond between the Company and the town was severed.

The 1947 census (60) showed a slight increase in population since the previous record. In fact, however, the increase in population by the end of the thirties had been quite considerable. During the war, it declined to about 3500, so that the total of 4017 in 1947 indicated a fairly rapid expansion in the previous two or three years. The sex ratio was back to the 1921 figure of one female to 1.13 males, an improvement on the 1933 figure. In the under twenty group, males exceeded females, as was the cas in the over seventy group, but in each group it was only a very slight excess. The sex ratio of the twenty to seventy age groups was one female to 1.1 males. The stability of the female population of the town is evident from the fact that the main age group in 1933 was the 20-24 group, while in 1947, this same group, now aged 35-39 was the main group. Due to the war, the main groups for males did not tally, being 25-29 in 1933, and 35-39 in 1947. As in previous years, the percentage of the population born in Australia increased this time to 96 per cent, a greater

(60) Census of Australia, 1947.

increase than in any previous census period since 1901-11. Those born in the British Isles accounted for nearly three per cent, while those born elsewhere declined to just over one per cent. New Zealand supplied slightly over 31 per cent of those born outside Australia and the British Isles, Italy 25 per cent and Malta 12 per cent. The four main denominations continued to account for well over three-quarters of the population, with the Church of England claiming the adherance of 42 per cent, the Catholic Church about 28 per cent, the Methodists ten per cent and the Presbyterians 5 per cent. The percentage who refused to state their religion decreased slightly to about twelve per cent. The percentage of the population counted as breadwinners decreased from 45 per cent in 1933, to 39 per cent in 1947. This was partly due to an increase in the proportion of the population both under fifteen and over seventy, who would be too young and too old respectively, with a few exceptions, to be included in the workforce. For the same reason the percentage of males included in the workforce decreased and was not by any means compensated for by a slight increase in the percentage of females now working. The percentage engaged in primary industry continued to increase, and accounted for about 54 per cent of the workforce, of whom 96 per cent were engaged in mining and quarrying, which in turn accounted for slightly less than 62 per cent of the male workforce. Secondary industry employed 17 per cent of the labour force, with 77 per cent of these engaged in metal manufacture, and 16 per cent in constructional works. Commerce, transport and

communications accounted for over 12 per cent of the workforce, and the professions for nearly seven per cent. Domestic service had ceased to be classed as a separate occupation, being included in the section headed "Amusements, Hotels, Cafes and Personal Service". This group accounted for over six per cent of the total workforce, but for over 26 per cent of the female workforce - the same percentage as was engaged in both the professions and commerce. Mining and quarrying remained the dominant occupations of the town, engaging 53 per cent of the total workforce. By 1947, there was evidence of an increasing population, although this had been somewhat interrupted by the war. The sex ratio was at its best level for over thirty years, although it was still well above the State average which in 1947 was one female to 1.01 males. This was, however, only to be expected in a mining town such as Queenstown, where inevitably there would always be a larger number of men in proportion to the population than in a similar sized rural town. The percentage of Australian-born continued to increase at the expense of those born in the British Isles and elsewhere. The percentage of women engaged in employment outside the home continued to increase in line with the current trend. Domestic service as such went right out, but the greatest field for female labour was in those types of employment where a degree of personal service was essential. Commerce, which includes shop assistants and office workers, and the professions, which include teaching and nursing, employed

almost as many as did personal service jobs, and these three groups covered close to 80 per cent of the female workforce.

Since 1947, there has been considerable expansion of residences in two main areas. The first of these is at South Queenstown in the area between Lovett Street to the north, Conlan Street to the west, and Roaring Meg Creek to the south. In other words it occurred in that part of South Queenstown, which, while seemingly ideal for residences, was delayed in its development. A number of reasons caused this delay, not the least being distance from the main shopping centre, proximity to the abattoirs and the possibility of flooding by Roaring Meg Creek. Already, about fifty houses have been built and it is planned to build fifty to a hundred more as soon as possible. The second area which has seen some housing development in the last decade is the Strahan Road area between Evan's Bridge, and the Company offices. To a certain extent the wheel has turned full circle, for it was in this area that the original township of Penghana sprang up. It is along this road, too that the Company has constructed single men's quarters to house seventy men, with dining rooms and recreation rooms in a separate block. The reason for this housing development in recent years is not hard to find - one need only walk round the streets of the town to discover it. Many of the houses were built fifty to sixty years ago and are in urgent need of replacement. Until an alternative home can be offered to the occupants, however, demolition is impossible. Secondly, although the numbers employed by the Company are not decreasing many of the

sons and daughters of old employees, having been trained by the Company, will only stay in the town if they have some chance of a house of their own. Thus, at the same time as there is an increasing demand for houses on the part of the younger generation there is the need to replace many of the homes belonging to the older generation. The plan to erect 50 to 100 more houses in South Queenstown will do much to ease the situation but it will not entirely solve the problem.

Apart from this housing development, the last ten years have seen few important changes in Queenstown. There has been no major policy change on the part of the Company, with this result that there has been no momentous event in the history of the town. In 1953, the road to Rosebery was completed, but a complete northern road outlet is still lacking. The purchase by the State Government of a helicopter has eased the transport situation, at least in times of emergency, and the Company has constructed a heliport close to its works. The exploratory work being done by Rio Tinto in search of new mineral desposits, and particularly for uranium, has given the region a feeling of hope which is reflected in plans for the town. Realising that it is essential to provide a high standard of education on the spot, the Government has authorised the construction of a new technical school, to be built at South Queenstown, and which it is hoped will have matriculation standard. An Australian Broadcasting Commission regional station was opened in 1954 and provides

listeners with good reception of all national broadcasts. In the last thirty-five years, the town has maintained a steady rate of progress, interrupted by external rather than internal events. That is, although unaffected adversely by the depression of the thirties, it suffered somewhat in the war period. But there have been no major upsets on the field to retard its progress. Queenstowners today, with the prospect of mining operations continuing for at least twenty-five years, can see no reason to be pessimistic about the future of the town. Only once in its sixty years has the town been on the point of closing down completely. It almost seems as though, when viewed in its entirety, this severe "low" was necessary to give the town a firmer basis than that provided by its first four years of excessively rapid development.

CHAPTER THREE

THE PRESENT QUEENSTOWN.

THE INTERNAL STRUCTURE.

The growth of Queenstown over the past sixty years has been influenced by many factors - the geographic ones of site and situation; the economic ones of copper prices and labour supply; the technical ones of mining and smelting operations; and the personal ones of individuals living in the town. These have combined to produce a town quite distinct in the urban pattern of Tasmania. This individuality can only be fully appreciated by a detailed analysis of the functions and elements of which the town is composed. (Fig. 4, page 123).

Whatever may be the cause and origin of a town, its primary purpose is to serve as a centre of exchange and to facilitate commercial activities. The bulk of this activity is carried on in the central business district, and in smaller towns almost all of it will be executed in this area. The central business district, or CBD, has been defined as the area of "greatest concentration of offices and retail stores, reflected in the highest land values and tallest buildings. Here, too, is the chief focus of pedestrian and vehicular traffic" (1). By definition then it consists predominantly of offices and shops, but other present and typical uses found within it include amusement centres, and hotels and

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(1) Murphy and Vance: Delimiting the CBD: Econ. Geog., Vol. 30, 1954; page 189.

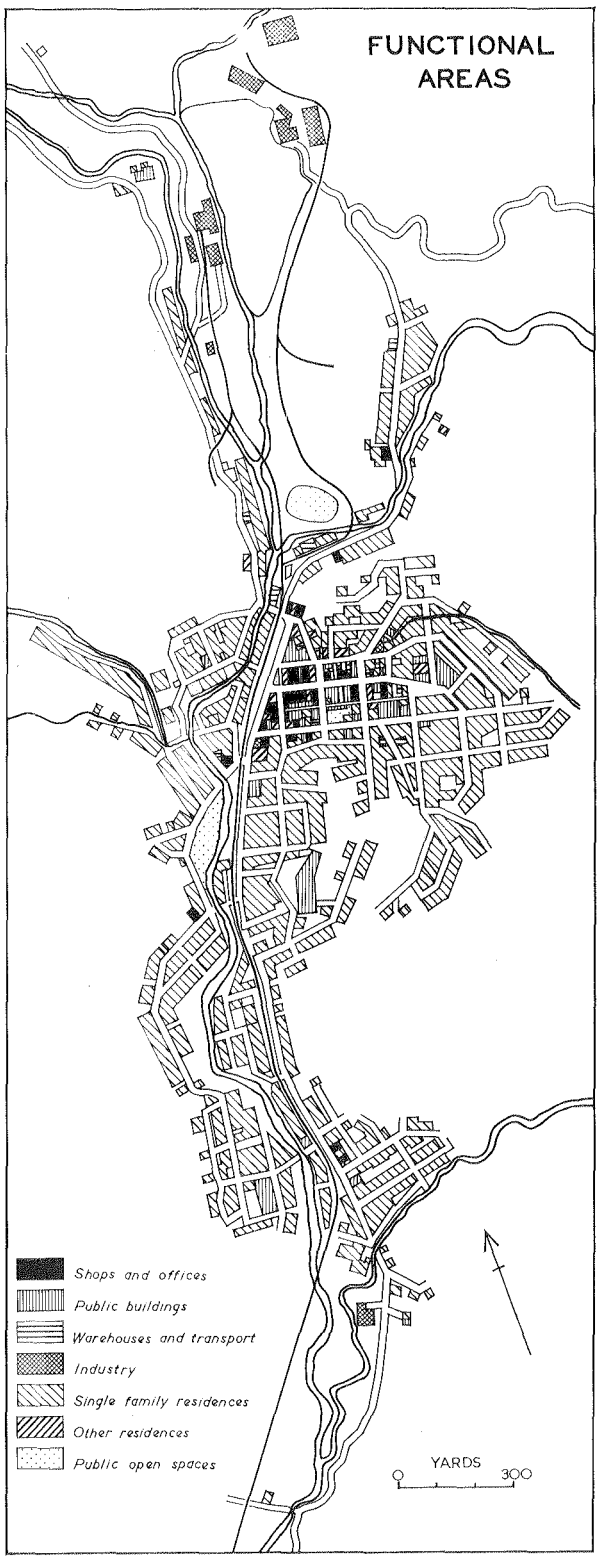

Fig. IV.
Based on fieldwork, 1957.

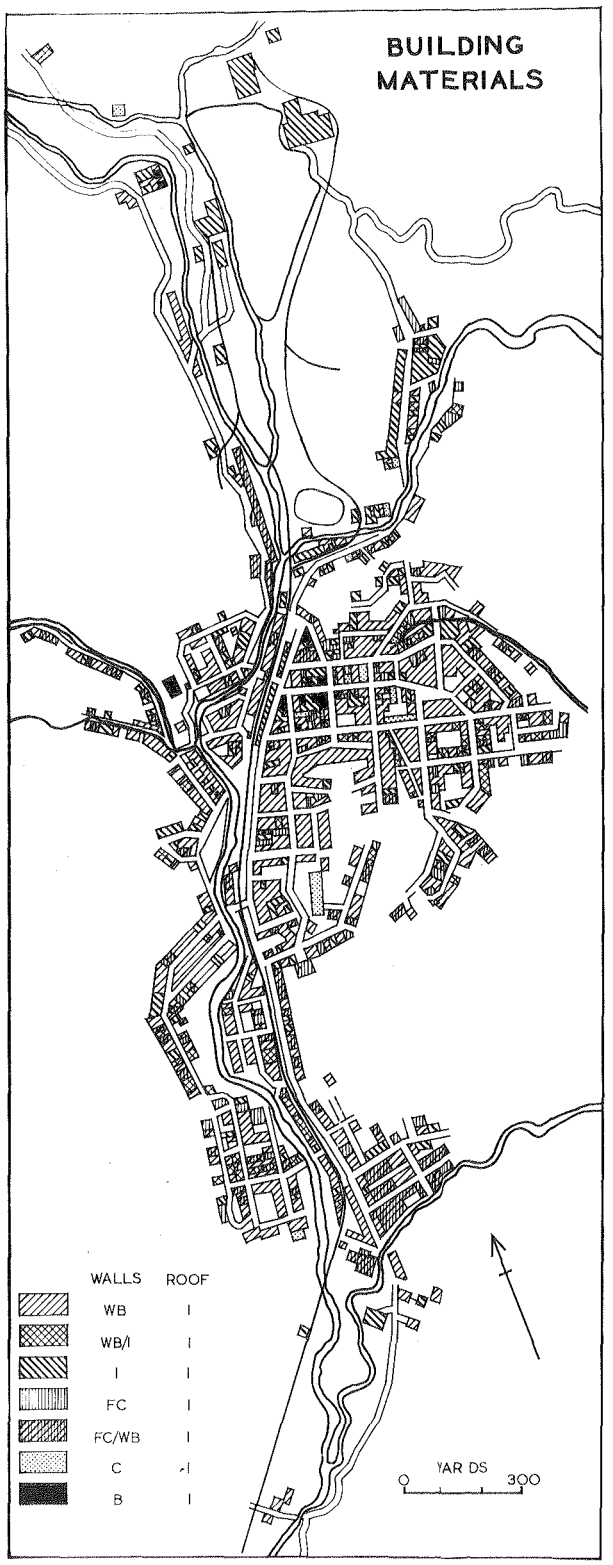

Fig. V
Based on fieldwork, 1957.

transient lodging establishments. It is invariably located near the geographic centre of the town it serves and it usually seeks flat areas. Its shape depends on the relative importance of the streets on which it is located. Barriers to the extension of the CBD include public buildings, railways, rivers and slope. Perhaps the main aspect of the CBD is the dynamic one. It is continually changing its shape and size, either expanding or contracting according to the fortunes of the town.

In embryo form all these facts apply to the CBD of Queenstown. Allowing only office and retail buildings, and strictly omitting private residential buildings, produces an L-shaped CBD, with the upright along Orr Street and the short stroke along McNamara Street. If, however, allowance is made for the essential immaturity of the whole area and isolated residences are permitted, then the resultant shape of the CBD approximates to a rectangle bounded by Hunter, Bowes, Cutten and Driffield Streets. On the half dozen private residences included in this area two are related to other buildings typical of the CBD. They are the police residence and living quarters attached to a bank. To the west the railway line forms a barrier to extension, but elsewhere the main restricting influence is slope. North of Hunter Street particularly, the slope is such as to make the extension of buildings other than for residential purposes almost impossible. Expansion of the CBD has in the past been east along Orr Street and it seems likely that this will continue to be the area of development or

retraction. Growth south along McNamara Street is possible and there will fairly certainly be some expansion to cater for the increasing numbers of people living in South Queenstown. Such extension would be restricted to a single street as the steep slope to the east and the railway line to the west would provide strong barriers. It is in fact more probable that, rather than extend the CBD along McNamara Street, a commercial sub-centre will develop at South Queenstown. Further evidence for this, apart from the growth of population, is the fact that since 1950 two shops have been built in addition to the one already there.

The peak land value intersection in Queenstown would undoubtedly occur at the intersection of Orr and Sticht Streets, where the four corners have a hotel, a bank, the Post Office, and a drapery store respectively. This peak land value intersection coincides almost exactly with the geographic centre of the CBD. The criterion of tallest buildings cannot be applied, as the two storeyed buildings are practically all confined to the hotels. The main focus of traffic is along Orr Street and the visual impression of pedestrian and vehicular traffic on a pay-Friday afternoon is of dense concentration on the south side of Orr Street between McNamara and Sticht Streets, with a gradually lessening concentration to the east along Orr Street and to the south along McNamara Street. Finally, the relationship between the CBD and the rest of the town can be summarised by saying that to all intents and purposes it is the only commercial area of the

town, and that consequently the whole of Queenstown is focussed on it to supply the basic needs of the population. Of the six blocks forming the CBD, only two present a continuous frontage, and in neither case is it a continuous shop frontage. The two blocks are on each side of Orr Street between McNamara and Sticht Streets. The northside block begins and ends with hotels, and has the Queenstown Club in the middle. The southside block is more shop-dominate, being broken only once by a hotel in the middle of the block.

The basic element of the CBD is the retail shop and the pattern of the various outlets provides an indication of ability of the CBD to carry out its function. The retail structure of Queenstown is at a very immature stage of development. The majority of shops are concentrated in Orr Street between Bowes and McNamara Streets, and in McNamara Street between Orr and Cutten Streets. The south side of Orr Street between Sticht and McNamara Streets is the main shopping block and it includes those shops normally found close to the peak land value intersection - namely, women's clothing shops and a drapery store which is the small-town equivalent to a large city department store. Also in this block are found the specialist shops, including the only jeweller in the town, and a music shop. Food shops, normally not found in the CBD, are excluded from this block with the exception of one milkbar-greengrocery. The majority of food shops are along the north side of Orr Street and the west side of McNamara Street. Furniture and hardware stores are, with one exception, absent from

the main shopping block. Hardware shops are in Orr Street near Bowes Street or in Cutten Street, while furniture stores show a similar distribution with two such outlets in Orr Street between McNamara and Stricht Streets. The overall immaturity of the retail pattern is perhaps best evidenced by the degree of dispersion of the general drapery stores which also have tinned food sections. Of the three such outlets two are located in the CBD, but the third is quite outside it, being at the junction of Stricht, Driffield and Batchelor Streets north of the CBD. Of the other two, one is in the main shopping block on the corner of Orr and Stricht Streets, while the other is a block away on the corner of Orr and Bowes Streets.

One of the signs of general immaturity and uncertainty of the future is that only the minimum number of each outlet type is found in the town. Consequently, there is no evidence of the self-affinity of certain types and the non-self-grouping tendencies of other types (2). Within the town there are only three drapery stores, two specialist shoe stores, and one jeweller. Furniture stores are rather more prominent due mainly to the expansion in home building at present. An important concentration of food shops occurs in Driffield Street. The Company, as part of its "self preservation" policy, has organised a general store and a

(2) For a full account of a method of determining the degree of affinity between certain types, and for the results obtained, see: Ratcliff, R.U.: The Problem of Retail Site Selection: Michigan Business Studies, Vol. IX, No. 1, 1939.

butchery in an effort to keep prices at a reasonable level. The butchery is located on the corner of Driffield and Cutten Streets, while the general store is on the opposite side of Driffield Street and next to the railway station. The Company store is a particularly interesting unit of the retail structure. It makes no pretence whatsoever of attempting to encourage sales. It has no display windows at all, and the only displays inside are limited in extent. All types of foodstuffs are sold and it is one of the main outlets in the Commonwealth for tinned milk. It does not attempt to get a monopoly in any way, but it does ensure reasonable prices. Besides foodstuffs, general drapery goods, hardware, and boots and shoes are supplied. The presence of such a store accounts for the absence of many small grocery shops.

Shops outside the CBD of Queenstown are very limited. With the exception of the general drapery outlet on the corner of Sticht and Driffield Streets, they are all of the single isolated general store type, selling a mixture of goods, generally of the food class but with a limited range of kitchen utensils, and sometimes certain types of clothes or more particularly footwear of the sandshoe-gumboot type. This latter aspect may well be a reflection of the weather. One such shop is located opposite the recreation ground entrance, and is more of the milkbar and food class than of the clothing type. The only store on the west bank of the river conforms very closely to the type, as does the store located between the railway and the river, in Selby Street. At

South Queenstown the three shops are all of the general grocery type. The overall immaturity of the town's retail structure is clearly evident.

The second basic element of the CBD is offices. These are few in number, mainly because Queenstown is not significant as a central place. The two banks are found in the same block - the north side of Orr Street between Sticht and Bowes Streets. The medical offices of doctors and dentists are grouped together in Sticht Street. The third area of offices in the CBD is found on the south side of Cutten Street between McNamara and Sticht Streets Offices here include Public Works Department, Press, and Medical Union offices. Offices for insurance companies are generally conducted in association with shops, which is one reason for the limited number of office buildings. Outside the CBD, the main office area is found a mile or so north of the town along the road to Strahan and Zeehan. This group is composed soley of Mount Lyell Company offices and it forms a distinct area in the prevailing industrial uses. Office buildings therefore, tend to be quite distinct from retail shops, but as noted previously, many shops also operate insurance and other financial agencies which in a larger town would be separated.

Associated with shops and offices in the CBD are centres for entertainment, and hotels and transient lodging houses. Such associations are certainly found in Queenstown. The only cinema in the town is located in McNamara Street on the east side, while

the two clubs - the Queenstown Club and the Recreation Club - are situated in Orr Street. The R. S. L. hall in Cutten Street and the Memorial Hall in Orr Street are likewise within the CBD. Of the eight licensed hotels in the town six are located in the CBD and the other two are in blocks immediately adjacent to the CBD. There is a concentration along McNamara and Driffield Streets closely related to proximity to the railway. The hotels and the guest house in Driffield Street are all two-storeyed buildings and so stand out from other types.

In order to include in the CBD blocks which warrant inclusion on the grounds of having shops and offices, other functional areas are included which would be excluded in a more mature CBD. Thus, a limited number of private residential buildings have been included; a small bakery is situated almost in the centre of the CBD; public buildings such as the Post Office, municipal offices, police station and Courthouse are found here; and the bus terminus for all buses from Hobart, Launceston and other West Coast centres is in Orr Street. The inclusion of such non-typical land-use types within the CBD is further evidence of its overall immaturity. It is due also in part to the need to take advantage of the limited amount of flat area, and confine if possible all general service buildings to level ground.

The general law of dispersion of public buildings, but with a slight tendency to concentrate on the edges of the CBD, is followed by the public buildings of Queenstown. Such buildings

are second only to commercial outlets in their importance in the community since they serve the entire population of the town in some way or another. The relative importance of each type of public building will vary according to the function of the town - whether it be educational, administrative, or religious. For most towns, however, there will be a certain number of buildings in each class with no undue emphasis on any one class. Historical trends are important in the establishment of public buildings. Difficult communciations may result in the creation of certain administrative rank for a particular centre, and such rank becomes redundant as communications improve. The legacy of this rank remains in the buildings, however, an anachronism, and a consumer of what might otherwise have been valuable land. There are several examples of this on the Coast. Queenstown has a large concrete two-storeyed post office, a relic of the days when the second floor housed the telegraphic equipment. Similarly, Strahan has a two-storey post office expected to deal with a population of several thousand. Today in both towns, only a quarter or less of the building is used for the purpose for which it was intended, the rest being residential.

In general, the administrative and political class of buildings tend to congregate together. Thus, in Queenstown, immediately adjacent to the post office is the police station and courthouse, while on the opposite side of the street are the municipal offices. Educational buildings, on the other hand, are generally scattered

fairly evenly throughout the centre. Since these are mainly schools, this is a natural development as it is not expected that a child should have to walk too far to get to school. Primary schools particularly are situated to serve an area of about a mi in radius. Secondary schools are more distant. Two primary state schools are sufficient to serve Queenstown. One is situated in Cutten Street southeast of the CBD, having been moved one block further away from the CBD about twenty years ago. The other is at South Queenstown west of the river, and might have been expected to serve as the nucleus for a developing commercial centre but for the fact that it is hemmed in by steep slopes which will restrict any further housing development on that side of the riv Each school caters for about 500 pupils. The secondary school was begun in 1914 on the site of the present library, but was later moved to its present position north of the CBD on the corn of Sticht, Hunter and Driffield Streets. An extension was later necessary to the opposite corner where a building was constructe to provide extra classrooms. East of the CBD along Orr Street i the Catholic convent school, established about 1898, and situated on a hill at the junction of Pontifex and Orr Streets. A recent addition to the school buildings in the town is the pre-school o the corner of Dixon and Cutten Streets.Finally in the educational class of buildings is the public library and reading room in Sticht Street, next to the municipal offices. All those educational buildings which serve a limited population - that is, schools -

are situated around the CBD but not in it. Where possible they have selected sites away from important traffic thoroughfares to reduce both danger and noise. The fact that with one exception they are found relatively close to the CBD is due in part to the size of the town, in part to historical accident, and in part to the importance of the central area. The one educational building which serves a large proportion of the population - the library - is located within the central area.

Whereas schools tend to be north and east of the core, churches are mainly to the east and south. In fact the four main churches are on a line running from northeast to southwest, from the Catholic church of St. Joseph on the corner of Pontifex, Orr and Creed Streets to the Anglican church of St. Martin on the corner of Driffield and Russell Streets. The other two churches on this line are the Methodist one on the corner of Cutten and Dixon Streets next to the Central State School, and the Presbyterian in Cutten Street midway between Sticht and Bowes Streets. Three of these churches are the same buildings that were built between 1898 and 1900, while the fourth, the Methodist, was rebuilt in 1945. Two other church buildings include the disused Gospel Hall in Cutten Street behind the Oriental Hotel, and the South Queenstown Methodist Church, also now disused. Together with educational buildings, these form a discontinuous band around the central area.

Included in public buildings for social services are the

hospital on the hill above McNamara Street, the dispensary of the Queenstown Medical Union in Cutten Street, and the fire brigade station in Bowes Street. The site for the hospital was selected to avoid as much as possible the fogs which formed in the valley. Hewn out of the side of the hill the possibilities of expansion are limited, but at the present moment the hospital is able to cope with the demands made on it. Buildings for amusement purposes are fairly well distributed, but with a tendency to concentrate in or near the CBD. As mentioned previously, within the CBD are found the cinema, the Queenstown Club, the Recreation Club, the Bookmakers Club and two halls. Close to it are the Masonic Hall in Cutten Street, the Gaiety Hall in Orr Street - now used by the Education Department as a gymnasium, and another Education Department hall in Duff Street. Two more halls are found in Bowes Street north of Hunter Street, while the Church of England hall is in Driffield Street near the church. Elsewhere in the town are the Drill hall owned by the Army on the west side of the river, and the South Queenstown hall on the corner of Lovett and Conlan Streets. Also in South Queenstown is the commercial radio station, south of Roaring Meg Creek.

Industrial, transport and warehouse and storage buildings are generally absent from the town. The few exceptions are all located on the outskirts of the main area of the town. Light industrial undertakings, however, are scattered through other areas. They include the bakery in Sticht Street; a dry-cleaners and a

small carpenter's workshop in Driffield Street; and one or two machine shops attached to the railway station. The location of industrial units along Driffield Street is in keeping with the general rule of an industrial area located near the railway line. South of the town are the abattoirs and the sewerage disposal works. The main industrial area of the town, however, is found well to the north. The smelters were in existence before the town was begun, and it was deliberately planned that the town should be well away from the smelters because of their particularly noxious character in terms of noise, dirt and danger. Included in this industrial area are the crushing and flotation plants, the smelters and refinery works, oil stores, electric sub-station, and various other machine shops, garages, stores and sawmills. Transport buildings are generally found on the periphery of the CBD, where they can adequately serve the heavy pedestrian traffic found there without adding unduly to the vehicular congestion. Buildings of this type include service stations, public transport depots, car parks and taxi services. There are not facilities for off-the-street parking in Queenstown, and as yet the parking problem has not reached such a stage of congestion that parking limits are necessary in any street (3). There are three service stations in the town - one along the road to Gormanston, and the other two just outside the CBD. Of the two central ones, one is on the corner of Sticht and Hunter Streets, and the other is in

(3) Personal communication from the Commissioner for Transport.

Cutten Street on the south side between Driffield and McNamara Streets. The terminus for all intrastate buses in in Orr Street between McNamara and Sticht Streets, but the garage for these buses is well outside the CBD in Orr Street. The only taxi service in Queenstown operates from a milkbar in McNamara Street, and tends to add to the parking congestion in that street. Storage buildings and yards likewise tend to find situations either on the periphery of the CBD or right outside it altogether. They are closely associated with the industrial area north of the town, but there are some units within the town itself. Perhaps the most important is the Cascade Brewery store on the corner of Hunter and Bowes Streets. The main concentration otherwise is along the south side of Hunter Street at the rear of the offices and shops of the north side of Orr Street. Each of the isolated shops has its own storage area and generally every shop had sufficient space to store its own goods. Consequently there is no call for a well developed wholesale trade with its associated warehousing, Overall, industrial, transport and warehouse buildings are poorly developed in the town, although outside it there is an important industrial area.

Residential buildings in the town are of two types - private houses and non-private residential buildings. The first type is self-explanatory while the latter includes hotels, boarding houses and hostels. Six of the eight hotels in Queenstown are found in the CBD with the other two in blocks immediately adjacent to it.

While on the subject of hotels a note on the drinking habits of the population is perhaps relevent. A mining town inevitably acquires a reputation for hard drinking and the number of hotels in Queenstown has frequently been the subject for comment. Purely in terms of the number of licensed hotels Queenstown ranks equal with Devonport in having eight, and they are exceeded only by the two cities. A ratio of hotels to population brings out the characteristic. Of the first eight towns in Tasmania with the lowest ratio, five are mining centres with Queenstown having the highest. The reason is that in times of boom a greater number were required and they have continued to exist after the population has declined. Waratah has the lowest ratio, followed by Strahan, Zeehan and Gormanston. Then come three rural centres of Beaconsfield, Cygnet and Stanley, with Queenstown eighth on the list. Two hostels cater for single men employed by the Company. One is the old Imperial Hotel on the corner of Driffield and Sticht Streets which was taken over by the Company in the early twenties. The other is along Penghana Road on the way to Strahan. A private guest house in Driffield Street opposite the station helps to cater for the tourist trade. Two Education Department hostels, one in Bowes Street and the other in Selby Street, are available for teachers. Private residential buildings account for all other built up areas. Extending almost to the Company offices in the north and to Roaring Meg Creek in the south, the majority of residential areas are essentially discontinuous. Few streets are

closely built on and the amount of vacant land causes excessive spreading of the town. Much of the vacant land is due to the slope. Public open spaces include the old cemetary site south of the hospital hill, which was closed in the thirties and a new one laid out to the south of the town; the recreation ground to the north which also served Penghana; two tennis courts on the west side of the river between it and the Esplanade and quite close to the general manager's hill; the Preston Street Reserve also west of the river; a children's playground on the corner of Stieht and Cutten Streets, the site of the old school; Anzac Memorial park a First World War memorial in the triangle between Hunter, Driffield and Orr Streets; and a basketball court next to the Commercial Bank, running from Orr Street through to Hunter Street. The overall impression of the town is not one of a densely built up area. It is somewhat surprising, therefore, to find in some areas small houses cramped together in as small a space as possible and surrounded by vacant land equally suitable for development. This situation is due mainly to the action of speculative builders who took advantage of the influx of population at certain stages. There are in the town no grades of housing such as frequently develop in areas of considerable hilliness due to the fact that there is little social distinctiveness.

The public utilities of Queenstown, practically non-existent for the first four years after the town was settled, have since been well developed and improved. The pollution of the Queen River rendered it impossible as a source of water and recourse to the

numerous tributary creeks became necessary. These are generally unsatisfactory, however, having high head-waters and steep gradients in their stream beds, and having neither sufficient catchment area, nor suitable storage for dependable and adequate supplies to provide for the short droughts which occur. Hunter's Creek was the original source of supply and later Roaring Meg Creek supplied the southern half of the town. Numerous springs also eased the situation. But the position remains that a water shortage is likely in times of drought, and that houses above 700 feet in altitude tend to suffer from low pressure of water. The whole town in now sewered with the disposal area well south of the town on the banks of the Queen River. The pollution of the river by chemical wastes from the smelters effectively reduces any danger of disease from the sewage. Deep stormwater channels are necessary to carry off quickly the torrential and continuous rain which the town experiences. Electricity has been available in the town since 1906, and until 1947 was supplied by the Company. In that year, however, the State Hydro-electric Commission took over. Every house is supplied or is in a position to be supplied with electricity and as there is no production of gas it is the only form of power. Telephone communications in the town were established early in the century and P.M.G. cables link most houses.

The earliest building materials used in Queenstown were a combination of calico or hessian with wood. King Billy palings were used later for walls and roofs and later still this combina-

tion was followed by wood and iron. Stone and brick, said to be the favourite building material in Tasmania (4) have never been important in Queenstown for two reasons. Firstly, wood was easily available, and the general level of income among the people was such that they could afford only the cheapest materials. Secondly, stone and brick imply a degree of permanence which is not consistent with the prevailing conditions of a mining town. Weatherboard became, and remains today, the dominant constructional material in Queenstown. Before further discussing building materials, it should be noted that all roofs, with one exception, are of corrugated iron. Many overseas visitors have commented on the dominance or iron roofs in Australia and Queenstown is perhaps a striking example of the national characteristic. The one exception to iron is a shop in Orr Street which still retains the King Billy slabs used as shingles in the first decade of contruction. Weatherboard is the material used for the walls of well over half the buildings of the town. The least important material is brick which is used only for the general manager's house and for half a dozen or so business premises in the central business area. This is somewhat surprising in view of the fact that the Company operated a brickworks up Raggedy Creek west of the town. The resources for it were limited, however, and its output was mainly reserved for those industrial buildings which had to be of brick, such as chimney stacks, furnaces and so on. Concrete buildings similarly are restricted to public buildings such as the

(4) Boyd: Australia's Homes: page 127.

hospital and the State School and a few commercial buildings. Two materials which are important, although to a lesser degree than weatherboard, are iron and fibro-cement. Both these are used by themselves and in conjunction with weatherboard. When used for walls the iron has a finer corrugation than does roofing iron. It is mainly confined to the north being used for most of the industrial buildings. However, the main area of iron for houses is also north of the town along the road to Gormanston - the area of the Piggery which was rebuilt in the thirties by the Company. Iron is also evident in the business centre where the front walls of shops - the only ones really seen - are mainly of glass and the sides and rear are of iron in order to economise as much as possible. Iron houses, other than those north of the town, are scattered sparsely throughout the other residential areas. A variation of the fully iron house is a combination of iron and weatherboard. Usually this is a weatherboard front with iron sides and rear, but the reverse does occur. There is a slight concentration of this mixture at the eastern end of Cuttern Street. The use of fibro-cement is somewhat different. There are in fact relatively few buildings built solely of fibro-cement, and they are scattered throughout the town, generally occurring in clusters of two or three, rather than as single isolated cases. More important, however, is the distribution of buildings composed of a combination of fibro-cement and weatherboard. These are generally the houses built since the Second World War, and they occur in two

main concentrations. The first is to the south, in the area just north of Roaring Meg Creek, and the second is to the northwest along the Strahan-Zeehan road, once the site of Penghana township. The standard method of combining these two materials is to have weatherboard to the window level, and fibro-cement sheets above. Apart from the two areas of concentration of this combination, it also is scattered throughout the town, as it seems to have been the dominant material in use since the war. The overall pattern of materials, then, is basically one of weatherboard buildings, with a concentration of iron buildings in the north, and of fibro-cement and weatherboard in the northwest and the south. These and other materials are scattered in sparse distribution through the town. But no other material is suffieiently in evidence to detract from the general impression of a wood and iron town. (Fig. 5, page 123).

Two basic architectural styles are discernable is Queenstown. One is essentially Georgian in outline, and this in spite of the fact that Georgian was out of date when Queenstown was laid out. It has a central door flanked by a window on each side, and a verandah running the full length of the front. In plan it may be either a primitive cottage with two rooms and a lean-to at the rear, or a bungalow with four room equally placed on either side of a central passage and again with a lean-to at the rear. The second basic type has one room - usually the left-hand one - projecting forward, thereby reducing the verandah to half. It is

this latter type which is more dominant in the town, probably because the former one, being the earlier style, has been replaced. The earlier style tends to be well represented west of the river. Fairly widespread building since the war has produced a house completely lacking any verandah, the front door being protected by a small porch. The main concentrations of this style coincide with the areas where fibro-cement and weatherboard combined is the dominant building material. Other than these three styles, however there is little architectural variation in the town. There are about half a dozen houses of the modern L-shape style, and there are a few of the very early Primitive Georgian type with no verandah at all. All styles, however, show variations and adaptations from the standard pattern (5). In common with most Australian homes, Queenstown houses are supplied in practically every case with a verandah. Quite apart from the architectural value of this, it serves a very utilitarian purpose in providing a sheltered space in which to dry the washing. Those houses with no verandah in front nearly all have one at the back for this purpose, while many homes have both a front and a back verandah.

Finally mention may be made of two other aspects of the buildings. The first concerns the height or number of storeys of the buildings. Queenstown is essentially a single storey town.

(5) See Boyd: Australia's Homes, for details of the eleven styles distinguished by him.

With the exception of the general manager's house, all houses are one storey. All the hotels on the other hand are two storeyed buildings, with some having three floors, The Commercial Bank, the post officer, the hospital, the Technical school and the Central state school, and two or three shops also have two storeys. Secondly, Queenstown in no exception to the national characteristic of red roofed houses. The pattern of colour is particularly noticeable as Queenstown is situated in a valley. Since the War, the town, in common with most other centres, has become "paint conscious" with the result that blue, grey, green and even black, roofs form a nice measure of contrast with the prevailing red.

THE POPULATION.

Some comments have been made on the population structure of Queenstown at earlier periods, but it is now necessary to evaluate these in terms of the present structure and to analyse this structure in as much detail as possible. Thereby it will be possible to interpret the effects of the population on the land-use structure and, conversely, of the land-use structure on the population (6).

(6) In the details given below, the figures given refer to the Municipality of Queenstown, and not to the town itself, unless otherwise stated. The two sets of figures so nearly coincide that the Municipality figures are relevent, since the population of the town forms 80 per cent of the Municipal population.

The total population of the town has varied according to the degree of economic prosperity. In times of mining depressions the population has declined, to rise again with returning prosperity. This is in contrast to the general rule that urban areas attract population in times of depression. But it is indicative of the single function base of the town - that if the mine is forced to reduce its employment, then those unemployed must find work in a new centre. There is no alternative means of occupation and the exodus of population is immediate. From a peak of 5,051 in 1901, the population declined to 3,206 in 1921, since when it has steadily risen to reach 4,497 at the census of 1954. The sex ratio of the total population in that year was 120 males per 100 females (7). This is a slight increase from the previous census when it was 113. In the working age group of twenty to seventy, the ratio in 1954 was 130, a substantial rise on the figure of 118 in 1947. This is a further indication of the expansion of the mine in terms of employment in recent years. The uneven intercensal period renders it impossible to compare age groups, as to whether or not one particular age group has remained the dominant one. For example in 1947, the main working age group was the 35-39 group. In 1954, the main group was the 40-44 group. But owing to the interval of seven years between

(7) This is the normal mode of expression of the ratio in Australia and America, although in Britian and New Zealand it is expressed as females per 100 males.

the two censuses, the main group of 1947 is in 1954 split between two groups. The age-sex pyramids for the town bring out most clearly the dominant position of the working group in relation to the economic circumstances at the particular moment. In 1901, when the Lyell field was at or near its height, the overwhelming preponderance of males of the 20-39 age groups, in relation to males of other age groups, and to females of the same age groups, is clearly shown on the pyramid. By 1911 however, the effect of relatively steady production had caused the pyramid to even out somewhat, and to have a tendency to conform to the theoratical shape. In 1921, the numbers of males in the 25-35 age groups were well below those in the older age groups, indicating that it was from this group that the greatest exodus of population occurred when the mine was forced to cut its employment. The depression of 1933 saw Lyell experiencing a slight boom in itself, and a tremendous boom in comparison with the rest of the State. This shows on the pyramid as an increase in numbers of the 20-39 age groups - markedly so on the male side but also present on the female side. By 1947, the tendency for the pyramid to assume the theoretical shape was becoming noticeable, but there was a bulge in the 30-45 groups due to an influx of population during the War and immediate post-war periods. The 1954 pyramid shows once more an increasing tendency to assume the theoreitical shape, at least on the male side, for the tendency is less marked on the female side. The instability of the population will always tend to be greater in a mining centre than in a rural centre. This is partly

due to the nature of the work, which is essentially temporary, partly to the conditions of climate and accessibility, and partly to the fact that it is generally a "men only" settlement, with little work available for single women, who therefore tend to move away much more rapidly.

This balance between the sexes has an important bearing on the birthrate, while the age structure affects the deathrate. The crude birthrate for the Western Statistical Division as a whole in the ten years from 1947 to 1956 has, except for the first mentioned year, always been well above the average birthrate for the State. Over the ten-year period, the average for the State was 25.734, while for the West it was 28.46. The highest rate recorded for the State in the period was 27.69 in 1947, while for the West it was 31.7 in 1951. This compares with the birthrate for the "Queenstown District" (8) as worked out by the local health officer in the early years of the century. In 1900 he gave the birthrate as 33.8, and in 1901 as 36.4. In 1902 and 1903 it reached a peak between 35 and 40, and thereafter, with the increasing stability of the population, it gradually declined. By 1911 it was about 29, around which figure it more or less stabilised, but with fluctuations in some years. The infant

(8) The figures given were supplied to the Town Board or Council by the Health Officer. There was no definition of the area to which they refer, but the population on which they are based was the number of occupied houses in Queenstown, allowing between four and five persons per house.

mortality rate is obtained by relating the number of children of less than one year of age dying in the course of a year to the number of live births registered in the same year (9). It gives a very good index for guaging the general welfare of the population. The average annual infant mortality rate for the ten-year period of 1947 to 1956 for the State is 24.42, but for the West it reaches 26.3. The highest rate actually recorded in both cases occurred in 1951, when the State rate was 26.3 and the West rate reached the enormous figure of 51. This was also the year of the highest crude birthrate for the West. Just as the birthrate for the West is consistently higher than the rate for the State, so the deathrate for the West is consistently lower than the rate for the State. While the average for the State for the ten-year period to 1956 was 8.594, the average for the West was only 7.59. In the first year of the period, 1947, the rate for the West exceeded the rate for the State. The lower deathrate can be explained by the high proportion of people of the working age groups. The conditions of the area are not conducive to retirement, and quite a large number of people move away once they cease working. This is one cause of the above State average deathrate which is found in the Urban Districts of the State. The Western Division deathrate is much lower than it was for the "Queenstown District" in the early years of the century. The deathrate for 1900 was given as 7, but in 1901 it nearly doubled to 13. In 1902 it declined to about 10.6, and in 1903 it

(9) Smith: Population Analysis: page 248.

further declined to 9.8. In 1911 it was 8.5, but by 1920 it was 10.7. Thereafter it fluctuated somewhat and in the post-war period has tended to stabilise around 7.5.

The natural increase of the population is found by relating the crude birth and death rates. This rate for the Western Division is generally the highest rate for the State. Whereas the State average is around sixteen per 1,000 of the total population, the rate for the West ranges between 20 and 23, although in 1953 it sank to eighteen. The rate of natural increas gives somes idea of the fertility of the population. Of greater reliability in determining the fertility, and therefore the likely future population, is the gross reproduction rate. This is based on the specific birthrates for women in each child-bearing age group. Based on the 1954 census the gross reproduction rates for each division show that the Western Division has the highest with 2.337, as compared with the State average of 1.785. Finally, the child/woman ratio of the number of children under the age of five per 1,000 women of child-bearing age again emphasises the high fertility of the West, the ratio in 1954 being 711 as compared with 577 for the State. The higher level of fertility for the West may be attributed in part to the isolation of the area, for it is characteristic of Tasmania that the northern areas have a lower fertility rate than the more isolated southern areas (10).

(10) For some discussion concerning the relationship between fertility and degree of isolation in Tasmania, see: Scott: The Changing Population of Tasmania: Geographical Studies, 1957.

Immediately after the War Tasmania experienced an influx of population from England and Europe as part of the Federal Government's policy of increasing population and development as a means of protection against possible invasion from Asia. Since this migrant population spread itself throughout the State, it was inevitable that Queenstown should receive a proportion. This was the cause of the lowering of the percentage of Australian-born persons in the population, to less than 94 per cent at the 1954 census. Whereas hitherto the percentages of persons born in the United Kingdom, and of those born elsewhere, had been declining, now they increased. Persons born in the United Kingdom and Ireland increased from less than three per cent, while those born elsewhere increased from less than one per cent in 1947 to over three per cent in 1954. Of those born elsewhere, over twenty per cent were Poles, over thirteen per cent were Italians, a further thirteen per cent were Germans, and over eleven per cent were Maltese. The position with regard to the religious denominations also altered slightly. The Church of England increased its position slightly, as did Presbyterianism, but Roman Catholicism and Methodism declined. These four denominations between them accounted for over 85 per cent of the population

The percentage of the population counted as the workforce increased from just over 39 per cent in 1947 to over 40 per cent in 1954. This was the result of the increase in population.

However the proportion of males working decreased very slightly, while the percentage of females working increased very slightly. The percentage employed in primary industry increased by about 25 per cent to just under 70 per cent. This was the highest amount for all the censuses, the previous record being 54 per cent in 1921. The increasing dependence of the town on the mine was clearly evident, as well as the great expansion of mining operations resulting from the mechanisation of the open-cut. Of those engaged in secondary industry - just under five per cent of the total workforce as compared with over sixteen per cent in 1947 - over 60 per cent were engaged in building and construction, indicative of the programme of house-building being undertaken by the Company. The percentage employed in commerce, communications and transport declined over the intercensal period from over twelve per cent to less than eleven per cent. On the other hand, the percentage in the professions rose from less than seven per cent to nearly eight per cent. Among the occupations available to women, the main one was public authority and the professions which accounted for a third of the female workforce. Commerce, communications and transport ranked second and employed just over 27 per cent, while the third most important occupation for women was the personal service group, which accounted for 23 per cent of the working females. Mining, therefore, continued to be the dominant activity of the town with the professions taking most of the female workforce. The number of persons em-

ployed by the Company in all types of occupations is between 1600 and 1700. With a total workforce in the community of about 2,000, it becomes quite obvious that the Company is the source of life to the town. In addition to those employed by it, about fifty are employed by the Council on municipal works, and about a hundred are engaged on Public Works Department undertakings such as roads. A further two hundred are employed in the town, in the shops, hotels, offices, schools and so on. Many people do in fact have two jobs, or rather two sources of income. Many of those who work for the Company have other interests, either a shop, or an agency for certain goods and services, or some other means. The absence of a "local service employment" group, such as plumbers and electricians, is due to the fact that the Company has to employ a certain number of men with these skills, and they are able to supply the needs of the town in their spare time. Many of the houses are owned by the Company who keep them in repair.

It is not only the quantitative differences in population which help to distinguish one region from another, and therefore interests the geographer, but also the qualitative differences. It is the qualitative aspects of the population which play a large part in the migratory movements within the population. One quality which influences migration is intelligence, and it has been shown (11) that this has an important bearing on the

(11) Scott: An Isonoetic Map of Tasmania: Geog. Rev., 1957: p.311.

internal migration pattern, and on the general standard of agriculture in Tasmania. It is possible to get a very good index as to the level of intelligence of the population by means of the intelligence tests given to all ten-year-old school children. As a result of these tests it has been found that the average I.Q. of all the West Coast centres is below the State average. More significant, however, is the relationship between the centres. As might be expected Gormanston, Strahan and Zeehan are lower than Queenstown and Rosebery. However, Rosebery ranks above Queenstown, an indication of the increasing degree of prosperity there, while Queenstown is experiencing a continuing trend of economic well-being.

A second qualitative aspect which needs to be considered relates to health. The occurrence of infectious diseases is closely related to the standard of living and to conditions of work. The incidence of disease will be greater in low standard areas and in areas where noxious industries are located. Tuberculosis is possibly the best example to illustrate this. It is particularly prevalent in industrial areas where the degree of pollution of the air is high. The incidence on the West Coast has always been considered to be higher than average, and the rate at the time when the smelters poured quantities of sulphur into the atmosphere was probably higher than at present. The average annual incidence for Queenstown in the post-war period is 1.5 per thousand of the population. This compares with 0.3

per thousand of the population in Hobart, and 0.5 per thousand in Launceston. The high incidence for Queenstown is due in part to the unwillingness of many of the people to live in decent surroundings; in part to the nature of the work; and in part to the climatic conditions.

The overall population pattern of the West Coast, and of Queenstown in particular, is in keeping with the trends of the past, but modified somewhat by unique post-war influences. The increasing dependence on the mine is evident, but the effects of overseas immigration are being felt just as much here as elsewhere in the State, and indeed in the Commonwealth. The effects of isolation and an uneven sex balance are felt in relation to fertility, while migration is influenced by intelligence, which thus affects the remaining population. Tuberculosis incidence and infantile mortality rates are further evidence of the intelligence level and reflect to a certain extent the standard of living which is in apparent contrast to the level of income. However, it should be remembered that the West Coaster is no worse and no better than the average person living elsewhere. To a greater extent that in rural areas however, he is dependant on his own town to supply all his wants - material, intellectual, and cultural. Isolated to a degree not experienced elsewhere in the State, he is in some ways more parochial than his fellow Tasmanians, but in other ways he is more nationally-minded than Tasmanians as a whole. In the past he has supplied much of the

political leadership of the State and in return has received little to reduce his isolation. Improved communications and transport methods in recent decades are doing much to reduce his individuality and it seems fairly certain that if the present rate of progress continues, the next generation will see few differences between the West Coaster and other Tasmanians, and that no longer will the Coaster be marked by the spirit of self-reliance at present so typical of him.

THE EXTERNAL RELATIONS.

In a region of "uniform terrain, equally easy movement in all direction, and an even distribution of the means and opportunities of livelihood" (12) a network of settlements will develop. But none of these criteria can be applied to the West Coast of Tasmania. It has already been shown that the terrain is anything but uniform. Communications are difficult in the extreme, and until recently have been almost non-existent. Finally the means and opportunities of livelihood are anything but evenly distributed. The primary source of income on the Coast is mining and the mineral deposits refuse to obey any rules regarding their location in a nice pattern. As a result, the pattern of settlement in such an area will be closely related to the pattern of ore bodies Other settlements will be generally absent, except for those which serve as transport centres. The difficulties of communications

(12) Smailes: The Urban Mesh of England and Wales: I.B.G. Transactions and Papers: 1946, page 86.

in the past tend to breed an independent attitude of outlook which in turn is reflected in the equality in services and service area of all the towns. Finally, the areas served by each centre are unlikely to completely cover the region, and it is also unlikely that there will be any overlapping of service areas. At the same time, however, these two latter facts will be at least partly cancelled out by the decline in importance of some ore bodies and the increasing importance of others, and, combined with this, the development of communications. This will result in a certain development of the settlement network, but only at a very immature stage.

Towns can be classified in three ways - in terms of population; in terms of their major functions; and in terms of the services which they provide for a certain area. In terms of population, Queenstown is the largest centre, followed by Zeehan, Rosebery, Strahan and Gormanston in that order. With the exception of Strahan they all owe their origins directly to the discovery of minerals. Indirectly Strahan also is closely linked with the mining industry, as without the incentive supplied by the ore it would not have developed as a port. Classification of towns by function is based on employment figures and a certain amount of weighting is necessary to exclude what is known as "service employment", or those employed in non-basic activities. There is little doubt that any method of classification on this basis will classify the West Coast towns as mining towns with

the exception of Strahan which will be a transport centre. Application of the several methods reveal certain important secondary classes. For instance, Queenstown is also important as a commercial centre, while Zeehan is equally a mining and manufacturing centre. In the case of Zeehan the second class is accounted for by the presence of smelting works in the town. These are not as important as the works in Queenstown but because they employ a larger percentage of the total workforce, Zeehan ranks secondly as a manufacturing town. The importance of wholesale and retail activities is evidence that Queenstown is the commercial centre for the West Coast.

One of the first methods for classifying towns according to the services they provide was evolved and applied in Britian (13). It employed a "trait-complex", or association of services arbitrarily defined as indicating the relevent rank of the town in relation to other centres. Since a town is fundamentally a centre of exchange, mainly at a commercial level, it follows that those services which have to do with commercial activities are the most appropriate indices for use in determining the rank of the centres. The "trait-complex" included banks and chain stores as representing commercial activities. Once a certain degree of commercial importance has been attained, a regular pattern of movement to the centre will be established, and other services, particularly professional ones, will be

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(13) Smailes: The Urban Hierarchy of England and Wales: Geography 1944.

quick to take advantage of the habits so formed in the population. Post-primary schools and hospitals are included in the "trait-complex" to represent these professional services. Two other services included in the "trait-complex" are cinemas and newspapers. Certain difficulties arise in the application of this "trait-complex". There is no indication given as to the status of these indices, as for example whether a bank agency operated by the post office, or open only on certain days of the week shall rank as equivalent to a bank operating in its own building and trading during the normal hours. Similarly there is no indication as to whether a cinema shall or shall not count if in fact it operates in a hired hall. Ignoring these, however, and applying the indices in their broadest sense, Queenstown stands out as the urban leader on the West Coast. With three banks, a cinema, a hospital, and two post-primary schools, it is just ahead of Zeehan which also has three banks, and a cinema, but a smaller hospital and only one post-primary school. Next comes Rosebery which has four banks, a cinema and a hospital. Strahan, the port, has one bank, a cinema and a small hospital, while Gormanston, the smallest centre in terms of indices and population, has one bank and a cinema. The gradation between the middle three centres is very difficult to distinguish.

A second method of classifying urban centres was evolved in America (14). It takes much more notice of the commercial

(14) Brush: The Hierarchy of Central Places in Southwest Wisconsin: Geog. Review, 1953: page 380.

importance of centres and in fact classifies them as hamlets, villages or towns according to the number of retail units present. Designed primarily to classify rural centres, certain modifications are necessary when it is applied to a non-rural area. Using it as a basis, however, the gradation of centres on the Coast is similar to that defined by the first method, but the relationship now becomes more meaningful. Queenstown is classed as a town, as is Rosebery, while Zeehan and Strahan are both villages and Gormanston is a hamlet. Whereas the first method indicates the relationship as between one town and another, the second method classifies the centres in the complete urban hierarchical system, which ranges from hamlet up to major city. The changed position of Rosebery to one of equality with Queenstown is indicative of its degree of importance in terms of commercial activities, a degree noted in the first method by the presence of four banks, but subsequently lost because of the lack of other facilities. The first method tends to be related to population so that a higher rank invariably means a larger population. The second method takes no regard for size in such terms, so that there is on the West Coast the apparent anomaly of Rosebery with a population of 1460 being classed as a town, while Zeehan with a larger population - 2816 - is merely a village. The second classification does in fact relate much more closely to the present stage of development of services. There is no doubt that from a purely subjective point of view, Rosebery is

on the upgrade while Zeehan is gradually declining. One has only to see the general appearance of the two centres to realise this.

The most satisfactory method of defining the extent of the area served by each centre is to find the extent over which the commercial activities of a particular centre are important. This is best done by ascertaining the centres commonly visited for certain specified types of shopping and services. The shopping outlets include mens' and womens' clothing, boots and shoes, hardware, furniture, radios and electrical goods. The services include doctor, dentist, optician, chemist, bank, accountant, solicitor and auctioneer. It is possible to obtain a very similar result by using a four-item index of shopping, bank, chemist, and cinema. Related to the West Coast centres these services provide an interesting pattern. Taking the fifteen item index first, Queenstown provides all types of shopping listed and all the services except those of optician, solicitor and auctioneer. None of these services are available at any of the West Coast centres, and for all of them Hobart and Launceston have to be visited. The position of an accountant is somewhat anomalous, There is no private chartered accountant on the Coast, but the Company accountant does undertake some outside work. Apart from these, Queenstown is adequately equipped to satisfy the needs of its inhabitants. Its relationship with Gormanston is very similar and in many respects the smaller centre can be regarded as a suburb of Queenstown. The services which are

lacking in Queenstown, and for which Queenstown people visit Hobart and Launceston, are also missing in the other centres and they also need to visit Hobart and Launceston. Strahan and Zeehan tend to be similar in the degree of their dependence on Queenstown. Both centres rely fairly heavily on it for all clothing andfootwear. Radios and electrical goods are commonly bought in Queenstown. Strahan is dependent on the copper town entirely for furniture and to a large extent for hardware items. Zeehan, on the other hand, is entirely self-dependent for hardware, and divides its custom for furniture fairly evenly between Queenstown and Rosebery. All the professional services supplied by Queenstown are used by Strahan and Zeehan people with the exception of banking facilities. Rosebery is less dependent on, and therefore less linked to, Queenstown. The only links are to a certain extent for clothing. For footwear and hardware it is adequately supplied, and for furniture, radios and electrical goods it looks to Burnie. The services of a chemist are drawn equally from Queenstown and Burnie, but it has its own doctor, dentist and bank. Hobart and Launceston and to some extent Burnie are the centres visited for optical services, legal advice, auction facilities and accountancy services. The relative importance of the towns can be shown best by means of a table. One point is allocated to each service to each centre. When a centre does not possess a service, the point is given to the centre or centres which it uses. As there are in all five centres concerned

each centre can receive a maximum of five points for each service which will be divided between the centres according to their relative importance. The situation is shown in the following table:

SERVICE	QTOWN	GMTON	STRHN	ZEEHN	ROSEBY	BURNIE	HBART	LTON
MENSWEAR	3½	-	½	½	½	-	-	-
LDIESWEAR	3½	-	½	½	½	-	-	-
FOOTWEAR	4	-	-	-	1	-	-	-
HARDWARE	2½	-	½	1	1	-	-	-
FURNITURE	3½	-	-	-	1	½	-	-
RADIO	4	-	-	-	½	½	-	-
ELECTRIC	4	-	-	-	½	½	-	-
DOCTOR	4	-	-	-	1	-	-	-
DENTIST	4	-	-	-	1	-	-	-
CHEMIST	4½	-	-	-	-	½	-	-
OPTICIAN	-	-	-	-	-	-	2½	2½
BANK	2	-	1	1	1	-	-	-
ACCTANT	-	-	-	-	-	-	2½	2½
SOLCTOR	-	-	-	-	-	-	2½	2½
AUCTNEER	-	-	-	-	-	-	2½	2½

This brings out very clearly the importance of Queenstown. In the case of every service which it provides it scores more points than any other centre and with the exception of banking facilities it scores half or more of the total possible number of points. By ignoring the services of optician, solicitor, accountant and

auctioneer, and thereby omitting Hobart and Launceston, the dominant position of Queenstown is clearly evident. The areas served with each facility vary somewhat - from banking in the area of Queenstown and Gormanston, to chemist services which extend to and include part of Rosebery's custom. The area served by Queenstown for boots and shoes extends over all the centres with the exception of Rosebery and the position is similar with regard to radios and electrical goods, and with the professional services of doctor and dentist. In all of these, Rosebery is either completely independent, or else looks to Burnie Women's and men's clothing extends to the other centres, but in the cases of Rosebery, Zeehan and Strahan it includes only part of their custom. For furniture Strahan and Gormanston are entirely dependent on Queenstown, while Zeehan uses both Queenstown and Rosebery, the latter town being in part also dependent on Burnie. Due mainly to the presence of mines at Rosebery and Zeehan these two centres are quite independent for hardware supplies. Strahan also is partly independent but relies to some extent on Queenstown, which has the whole custom of Gormanston. The banking area of Queenstown extends only to Gormanston, all the other centres being adequately supplied. To all intents and purposes, then Gormanston can be regarded as a suburb of Queenstown. Strahan falls within the service area of the copper town completely for seven of the eleven services and partly for thee others. Only in one is it independent. Zeehan is linked to Queenstown also for seven facilities but is independent for two,

sharing the others with Rosebery and Queenstown. For no service is Rosebery completely dependent on the other town of the area. Two services are shared between them and another is shared between Queenstown and Burnie. Rosebery shares three others with Burnie and for the remainder is quite autonomous. The boundary zone for the service area of Queenstown falls between Zeehan and Rosebery and includes Gormanston, Strahan and Zeehan. The exclusion of Rosebery is largely the result of the communication network. Until 1954 the only link between the two towns was the railway line which connected all the centres with Burnie. It was therefore inevitable that the most northerly centre should have closer links with Burnie than with Queenstown. The completion of the road linking Zeehan with Queenstown as well as the gradual decline of Zeehan in terms of population have resulted in the increasing dependence of that centre upon the copper town.

There are certain slight variations of this pattern when the four-item index is applied. The four items are banks, cinema, chemist, and shopping generally. Using the same procedure for scoring as before the following results appear:

SERVICE	QSTOWN	GORMST	STRAHAN	ZEEHAN	ROSEBERY	BURNIE
BANK	2	-	1	1	1	-
CINEMA	1½	½	1	1	1	-
CHEMIST	4½	-	-	-	-	½
SHOPPING	3⅓	-	½	½	⅓	⅓

The most noticeable feature of this is the slight change in

the relationship of Queenstown and Gormanston. The service of a cinema is available in Gormanston but only on one night of the week, as compared with five nights in Queenstown. Consequently many people come down to Queenstown during the week. In the other centres also there are cinemas, although the number of showings each week is never more than on two evenings in any of the centres. This does lessen the dependence of these centres on Queenstown, however. The indices of chemist and shopping repeat the pattern of the earlier index, and give Queenstown over half the possible points to be scored, and more than four times the number of points scored by any other centre. According to this index there is no overlapping of the areas of Zeehan and Strahan. Gormanston is again completely within the service area of the copper town, which also includes Strahan and Zeehan for most services and for some - mainly shopping and chemist - extends to Rosebery. Once again, however, it would be more logical to draw the boundary zone in such a fashion as to exclude Rosebery as the degree of service is so slight as not to warrant its inclusion.

A further check on the relative importance of each centre is provided by the analysis of the travel facilities available between them. A centre will not draw any benefit from the services it provides unless it is possible for the inhabitants of other centres to take advantage of them. A study of bus services between the West Coast centres further reveals the importance of Queenstown. The bus services make it possible for

people from Strahan and Zeehan to spend several hours in Queenstown, but the reverse is not possible. There is as yet no bus service connecting Rosebery and Queenstown, public transport between the two centres being confined to the train. The train services are such that it is possible for Queenstown people to spend the day in Strahan, but this is mainly used by business people and holidaymakers. Bus facilities are limited to the barest minimum - one or sometimes two services a day. Nevertheless the important position of Queenstown is strengthened. The size of the centres and their relative sparseness make it impossible to further differentiate their service areas, and all centres are linked so some extent to Hobart and Launceston. It is evident, however, that Queenstown is the dominant centre, as well as being the one with the largest service area. The dominance is in part due to its size - having the largest population of all the Coast centres, it will provide certain services for them alone irrespective of the population of its service area and partly to the communication network, which makes for an orientation of movement towards Queenstown. On the West Coast, then, Queenstown ranks supreme among the urban centres, both in terms of the services available and in terms of the area served.

CHAPTER FOUR.

CONCLUSION.

The West Coast region which includes some of the most rugged country in the State constitutes about one-eighth of the total area of Tasmania. Seen from twisting winding roads and steeply climbing railways, it is a constantly changing picture of mountain and valley, and one of the most fascinating parts of the Island. The heavy rainfall produces a dense vegetation, in sharp contrast to the sparse open woodland of the subhumid areas of eastern Tasmania. Interspersed with this thick vegetative cover, in places where poor soil or drainage conditions are found, or where severe fires have completely destroyed the original cover, are the button grass plains, incapable of producing crops or supporting livestock. The rugged nature of the country, the dense vegetation, and the lack of areas suitable for agriculture combined to delay the exploration and settlement of this area. The prospect of mineral discoveries and the possibility of a fortune if gold were found there, were the baits for the hardy prospectors who poineered the area. Even so half a century or more elapsed between the founding of Hobart and the first serious exploration of the region.

The desire for gold resulted in the discovery of tin at Mt. Bischoff, silver lead and zinc at Zeehan, and copper at

Queenstown. The moon-like surroundings of Queenstown and the black slag dump immediately north of the town are reminders of a past era of prosperity. The Queen River provides a striking contrast to the lush green of the rest of the area. The barren hills on either side were once thickly covered with vegetation, but repeated fires and the effects of sulphur have combined to reduce the vegetation to a scattering of blackened stumps. In its heyday Queenstown ranked as the third town in the State. It came into being in an attempt to avoid the smoke from the smelters and received its initial impetus from the destruction of its predecessor Penghana. During its first four years of existence to 1901, the population increased from less than one thousand inhabitants to more than five thousand. With the increasing, population came increasing facilities such as public utilities, professional services, and a wide range of shops. It was the main centre on the Coast. The presence of the general manager of the Company saved the town from abandonment when the merger of the two main companies occurred in 1903. By this time the initial boom was over and the town settled down to a period of fairly slow but steady growth. Its fortunes closely followed those of the Company, inevitably so in a town dependent on one occupation. It is characteristic of the West as a whole that it is so dependent on a single resource. The closure of a mine led to an exodus of population which it was hard to re-attract. Similarly any fluctuation in the Company's progress is reflected

in the progress of Queenstown.

Today Queenstown ranks as the seventh town in the State, being exceeded by the two cities of Hobart and Launceston, the North West Coast ports of Burnie, Devonport and Ulverstone, and New Norfolk in the Derwent Valley. It is therefore larger than most of the State's rural centres. At the present time it is experiencing a period of growth. The demand for new houses has led to the development of areas previously not built on, as for example at South Queenstown. The town is characterised by the use of corrugated iron as the main building material. This is an indication of the impermanency ever present in a mining town. However, in the face of the present building boom, this feeling is in recession. The main street of the town, lined with verandah posts is so typically "wild western" that the appearance of a horse-drawn coach would not be out of place.

Increased stability over the past few decades has not meant increased facilities. Queenstown is dependent on Hobart, Launceston and Burnie for certain professional services, and for most of its daily needs. Queenstown and the Coast generally have always been dependent on areas often far distant for food supplies. For some types of food, however, the situation has changed over the years, particularly with regard to the basic commodities of bread, milk and meat. In the very early years of the settlement, the population was dependent on home baked bread made usually with very old flour; on the barest minimum of tinned

milk; and on salted meat which was the only form in which meat could be stored over long periods. The flour, the tins of milk, and the salted meat arrived at Strahan by boat from Melbourne or Hobart and was then railed to Queenstown. By 1900 the situation had improved somewhat. A bakery was established in the town; a few cows at Strahan provided a limited amount of fresh milk; but the dependence on tinned milk was still very great; and the Town Board opened abattoirs to the south of the town. Stock for the latter were generally railed from the north-west farming areas. Today the situation is, if anything, worse than in 1900. This is only to be expected in view of the slight overall decline of the town. Until 1956, two small bakeries were able to supply the bread demands for the whole of the town. But in that year one was burnt out, and the other - out of date, inefficient, and small - was unable to supply the needs of the town. The Company was therefore forced to take action in the matter and arranged for bread, baked in Hobart in the early hours of the morning, to be freighted to Queenstown in time to arrive by midday. The local bakery continues to supply fresh bread at the weekends, but for most people all the time Hobart is the source. A similar situation exists with the milk supply. Virtually all the milk required by the town is brought by road from Hobart where it is pasteurised and bottled. Stock for the abattoirs still comes mainly from the northwest. Vegetables, fruit, and other perishable goods generally come in daily from

the larger centres, while tinned foods, of which there is an enormous sale, are usually shipped from Hobart or Melbourne. Other goods such as clothing, boots and shoes and hardware are about evenly divided between the Tasmanian and Victorian capitals. Most of the equipment, chemicals and other requirements of the Company are ordered from Melbourne because of the cheaper transport costs, but an increasing proportion of goods are being ordered in Tasmania in an endeavour to help the home market where possible.

In the past the dependence on Melbourne greatly exceeded that on the Tasmanian towns. Some of the services which Queenstowners now seek elsewhere were, in the late nineties of last century, to be found in the town. At the height of the copper boom the Coast supported in all eight lawyers, but today there are none. Inevitably, with a declining population and improved means of transport, links with the larger centres grow. At the beginning of the century, the links with Melbourne were stronger than those with other Tasmanian centres. With the completion of the railway to Burnie, it was quicker to travel by ship from there to Melbourne than by land or sea to Hobart. The dangerous entrance of Macquarie Harbour made shipping from Strahan a risky operation, while the complete rail trip to Hobart involved a journey of some four hundred odd miles. The comparative closeness of Melbourne was realised at the time of the disastrous North Lyell fire in 1912. A train from Hobart, and a steamer from Melbourne, both carrying special fire-fighting

equipment, left their respective centres within a few hours of each other. The steamer unloaded its equipment to Burnie to be carried by special train to Queenstown. Even so the interval between the arrival at Queenstown of the two sets of equipment was less than twenty-four hours - and heavy seas in Bass Strait reduced the speed of the steamer to eight knots. This was perhaps the most dramatic evidence of the relationship to the Coast of the other centres.

The eight to ten thousand people on the West Coast are by no means evenly distributed, but are concentrated in about half a dozen settlements ranging in size from 200 to 4,500 people. Movement between them is difficult, as is movement between them and other parts of the State. Despite the handicaps of transport and communication, however, the importance of the area has always been appreciated even though this appreciation has not always produced tangible results in the form of improvements. Any improvement in the communication network was achieved only at the expense of much bickering and controversy and after long delays. Not until four years after the Queenstown smelters began operations was the railway line from Burnie to Strahan completed. It was twelve years after the first survey party started work on the road from Derwent Bridge to Gormanston that the construction work was completed and the road formally opened. The delay was largely due to the essentially impermanent nature of mining operations. Was the capital expenditure on such works warranted in the light of the fact that there was no guarantee

that the population using the transport means would still be there in five years time? Would the works, in fact pay for themselves before the mine failed, thereby meaning a loss of money which could well be used in other more populated parts of the State where, although returns per annum might be less, their continuance was more assured? Slowly, however, came the realisation that the mine was not likely to shut down overnight and that it did in fact warrant some measure of expenditure on improvements and facilities.

Of the other centres on the Coast today, the only one of any importance is Strahan. In terms of the State's total sea-trade it ranks as the fifth port. Over the ten-year period from 1946-7 to 1955-6 it handled an average of 2.4 per cent of the annual trade, being exceeded by Hobart, Launceston, Burnie and Devonport. The main imports handled by Strahan are metals, manufactures and machinery which account for 57 per cent of the total imports, while food, drink and tobacco account for 25 per cent. Of the exports copper ore accounts for 88 per cent of the total value of exports and other ore products for a further 10 per cent of the value. Thus 98 per cent of the value of exports from Strahan is derived from minerals. Its position in the ranks of Tasmanian ports and the fact that its total trade is largely due on the one hand to the products of a single company and on the other in large part to the requirements of that company is further indication of the overall importance of the West Coast

in the State's economy. Rosebery, which to all intents and purposes is outside the sphere of influence of Queenstown, is today experiencing a boom and seems likely to rival Queenstown. Zeehan, once the leading centre on the Coast, is today little more than a ghost town, while Gormanston is a suburb of Queenstown, and soon will not be even that.

Its chequered history, its essentially impermanent nature, its isolation, and its wild west appearance do not detract, but rather add to the fascination and individuality that is Queenstown's. In terms of its contribution to the State as a whole, there is no doubt that it plays an important part. But once the end of the ore reserves comes in sight, the exodus of population will be rapid and complete. At the moment, Queenstown extends its influence over a very limited area, but the facilities which it provides for the population of that area exceed those provided by similar sized rural centres. This influence will quickly decline with any exodus of population however, and Queenstown will no longer have its present importance. Such a decline is not likely in the immediate future and Queenstown will continue to maintain its position as the copper-mining centre of Western Tasmania.

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